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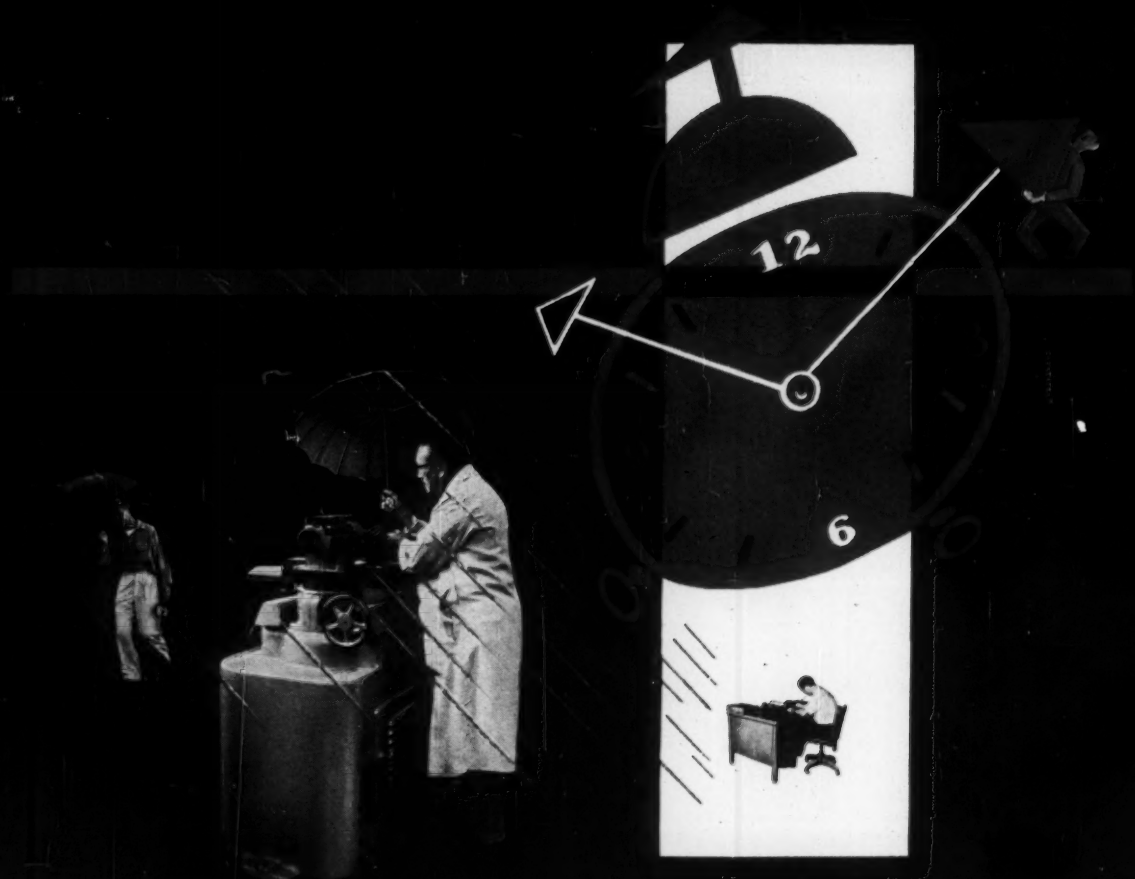
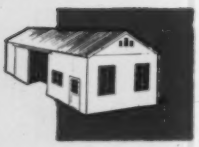


Can business wait for slow buildings?



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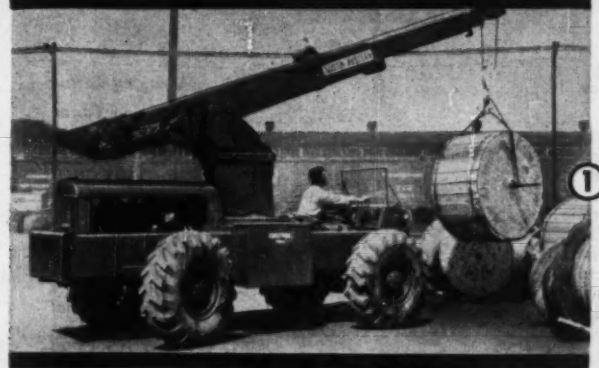

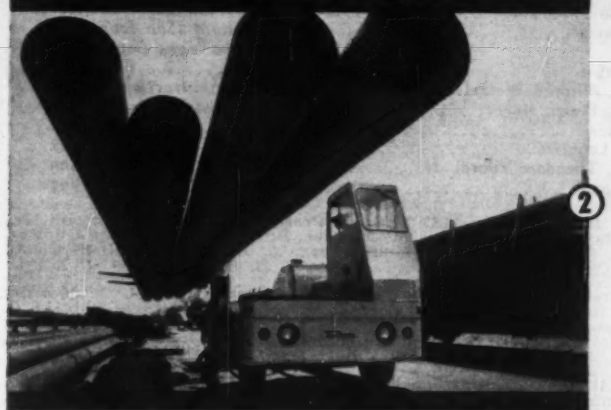

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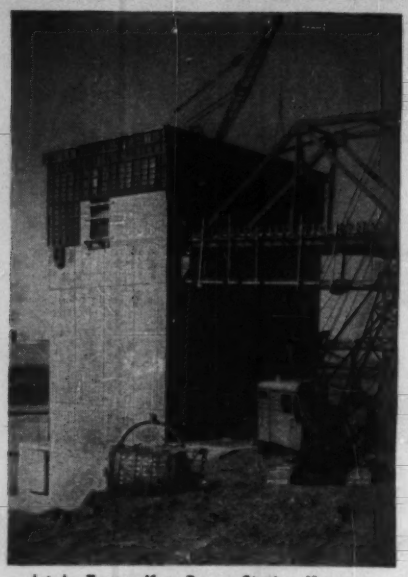

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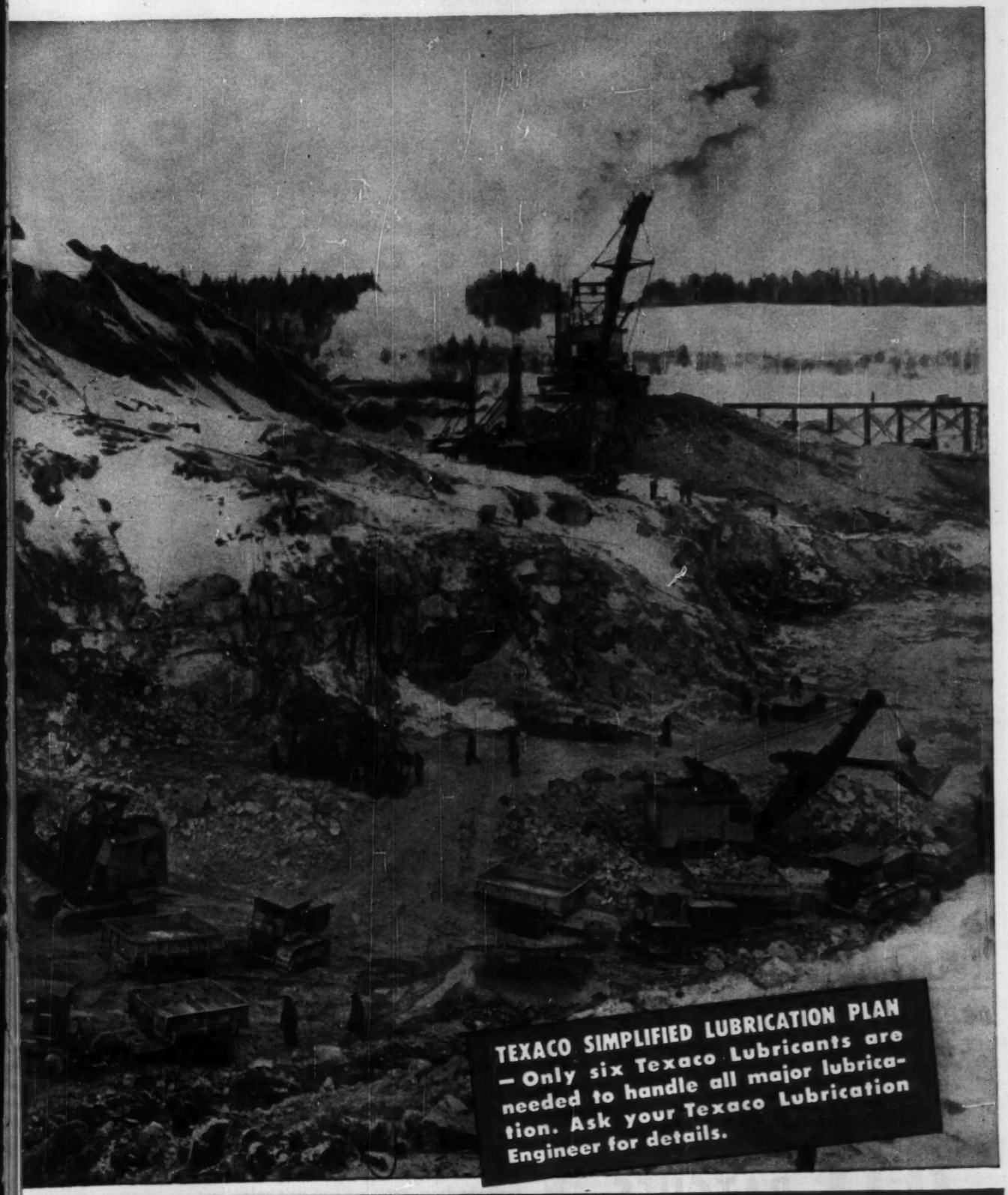
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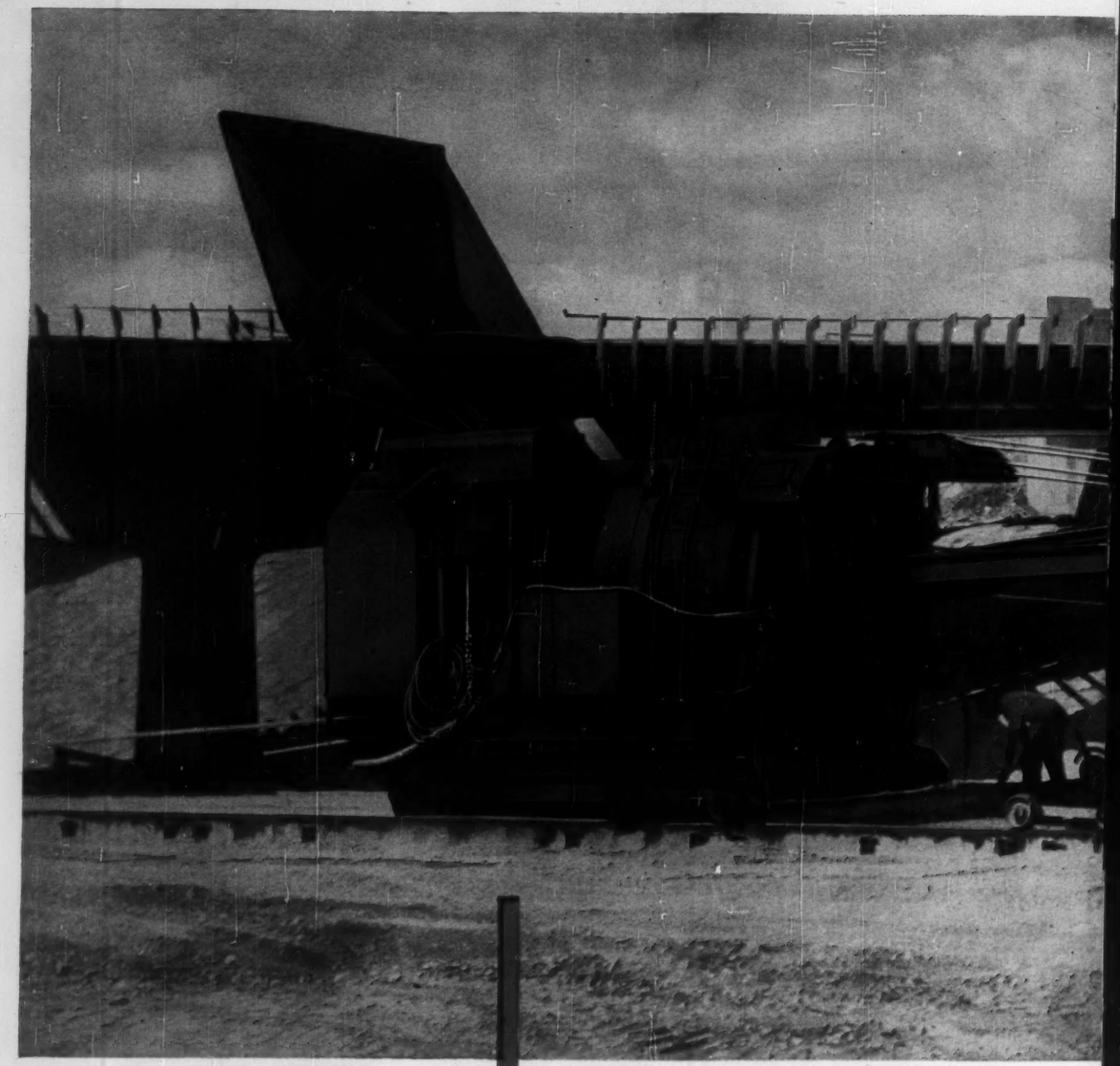

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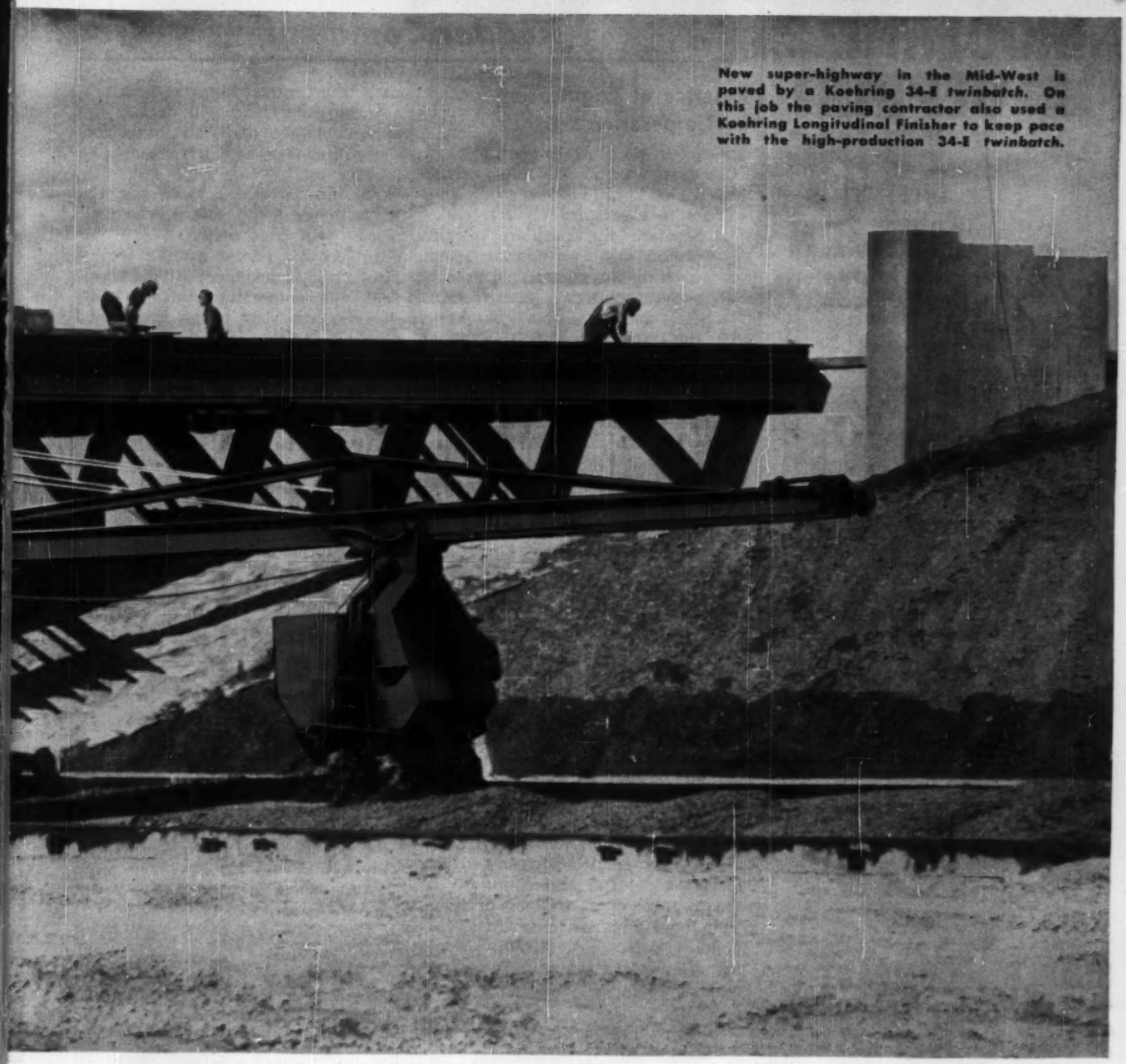

New super-highway in the Mid-West is paved by a Koehring 34-E *twinbatch*. On this job the paving contractor also used a Koehring Longitudinal Finisher to keep pace with the high-production 34-E *twinbatch*.

over the single-drum paver — 40 extra batches a day. Yet, it requires only about 3 extra batches a day to offset the slight additional cost of a 34-E *twinbatch* paver. That leaves a net gain of 37 extra batches per day to help maintain schedules, complete more jobs per season, and earn more profits per job.

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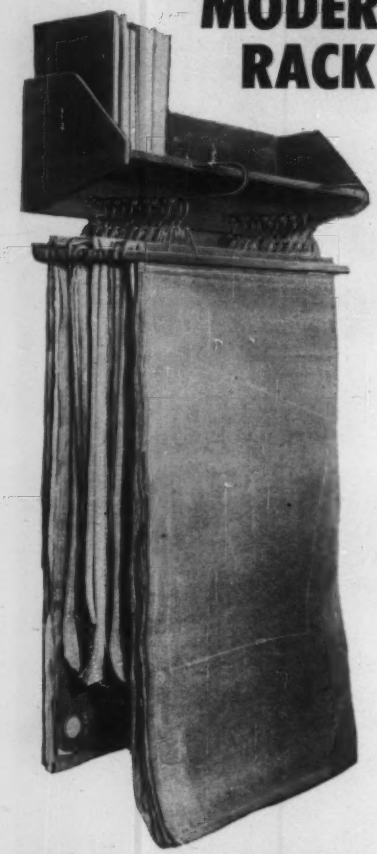

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Reader Comment

Practice of Engineering by Corporations

SIR—With reference to your editorial "Corporate Practice of Engineering" (ENR Oct. 20, p. 180), the following solution is suggested:

a. Separate the portions of the project into two contracts, one covering the commercial aspects such as materials, construction, etc., and the other containing the provisions for professional services.
b. The commercial contract is executed by the corporation.
c. The engineering contract is executed by a licensed individual who assigns his financial interests in the contract to the corporation. Such individual could be an officer or employee of the corporation.

The doctrine which rejects the corporate practice of professions has been well established by the common law to insure competent service and personal loyalty by the practitioner to the client, and to prevent attempted professional service to two "masters," viz. the corporation and the client.

The doctrine and the courts are not concerned with the earnings or "profit" aspects of the practitioner's interests. On the other hand clients who are contemplating large scale investment in a project desire some assurance of financial capacity to perform the contract and continuity of service in the event of illness or death. The above proposals serve both viewpoints which are the underlying reasons for the formation of large multiple partnerships in practically all professions.

In brief, the answer lies preferably in partnerships, or by corporate support of a licensed individual. Any other course, if subject to litigation, is certain to be rejected by the supreme court of the state involved on appeal thereto. In such actions the state courts will not separate the legitimate parts of a contract from the questionable provisions and will declare the entire contract void "ab initio" because of conflict with the engineering practice act.

As the practice act invokes the police power of the state it becomes a matter of "states rights" and is not a subject for review by the federal jurisdiction. Lacking an avenue of appeal, the corporation thus sustains damages equivalent to the accrued expenditures made in reliance on the contract. It cannot plead unjust enrichment of the client as it has "unclean hands" and is barred from relief under equity.

Attempts to legislate "exemptions" or "permissions" into the practice acts will prove unsuccesful if they violate the professional doctrine. For example, the 1921 Pennsylvania act contained an exemption from licensure for "officers and employees of corporations engaged in interstate commerce," a patent attempt to invoke federal jurisdiction. In 1927 the act was declared invalid because this exemption violated the state constitution which guaranteed "equal opportunity of acquiring, possessing and protecting property." As the act lacked a "savings clause," a single violation was sufficient to reject the entire law and the court "rested" its decision on this precedent. Nevertheless, the court's decision contains "dicta" opinions concerning other exemptions, such as for federal employees, which may prove fatal to the exemptions if tested in the future.

The attitude of the courts toward such applications of the common law vs. statutory law is unlikely to change. It is inconceivable that lawyer judges will upset the doctrine which is the basis for qualification to practice the law profession or any other profession declared to be such by an act of a state assembly invoking the police power. The "common welfare" takes precedence over all rights including property rights.

G. E. GEYER
Industrial Engineer
Korea Office
Tippetts-Abbett-McCarthy-Stratton

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Old Bridges Have Advantages

SIR: Last fall I took a day off to travel around the Pocono Mountains section of Pennsylvania, to see what the place looked like after the hurricane and the heavy rains.

I had heard that the going would be tough on account of detours around washed-out bridges, and that proved

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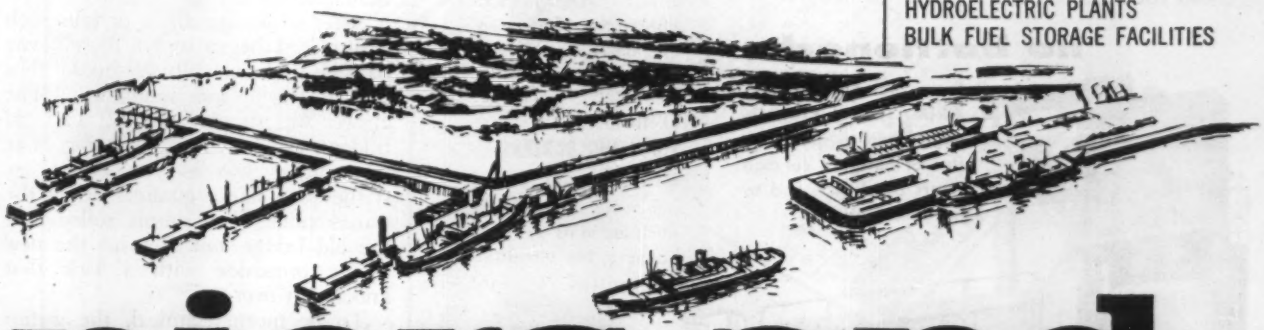

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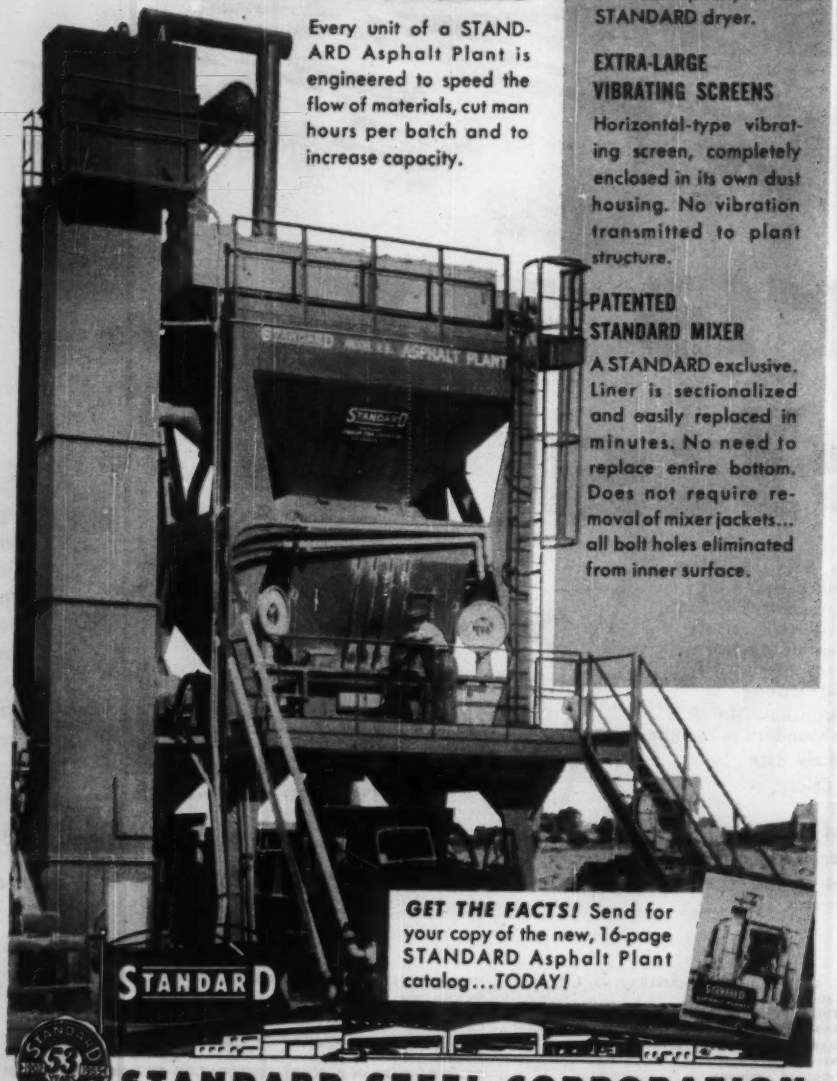

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to be the case. Curiously, a detour would take you over a stretch of abandoned road and over an abandoned bridge, which bridge looked ancient, shriveled-up and small, but carried the freight just the same as it had done twenty years ago before the engineers came to build a new highway with easy grades and curves, and left the old bridge standing only because it was too much trouble to tear it down—or because it was needed to give a farmer access to his ground.

As I drove over one of those old bridges and heard it squeak, I thought I heard it laughing at the discomfiture of its bigger, younger brother upstream or downstream, now crippled beyond repair if not slaughtered outright.

The old bridge was the old man that took the blow standing up while its big boy, the new bridge, dropped dead under the load.

After witnessing three or four such examples, I began to ask myself why old age and decrepitude should thus survive youth and modernity. The answer was simple enough: The old bridge was built low—like a dog. The new bridge was as you might say statuesque—like a giraffe. When the waters came, they simply rolled over the old bridge, but they hit the new bridge broadside with a kick that knocked it over.

To be more technical, the waters got all the waterway they needed OVER the old bridge. But the same waters piled up against the new bridge, built up pressure and velocity heads, undermined foundations and dropped the whole thing in the torrent.

Thus does a big wind knock down the tree while it only bends the grass in the field.

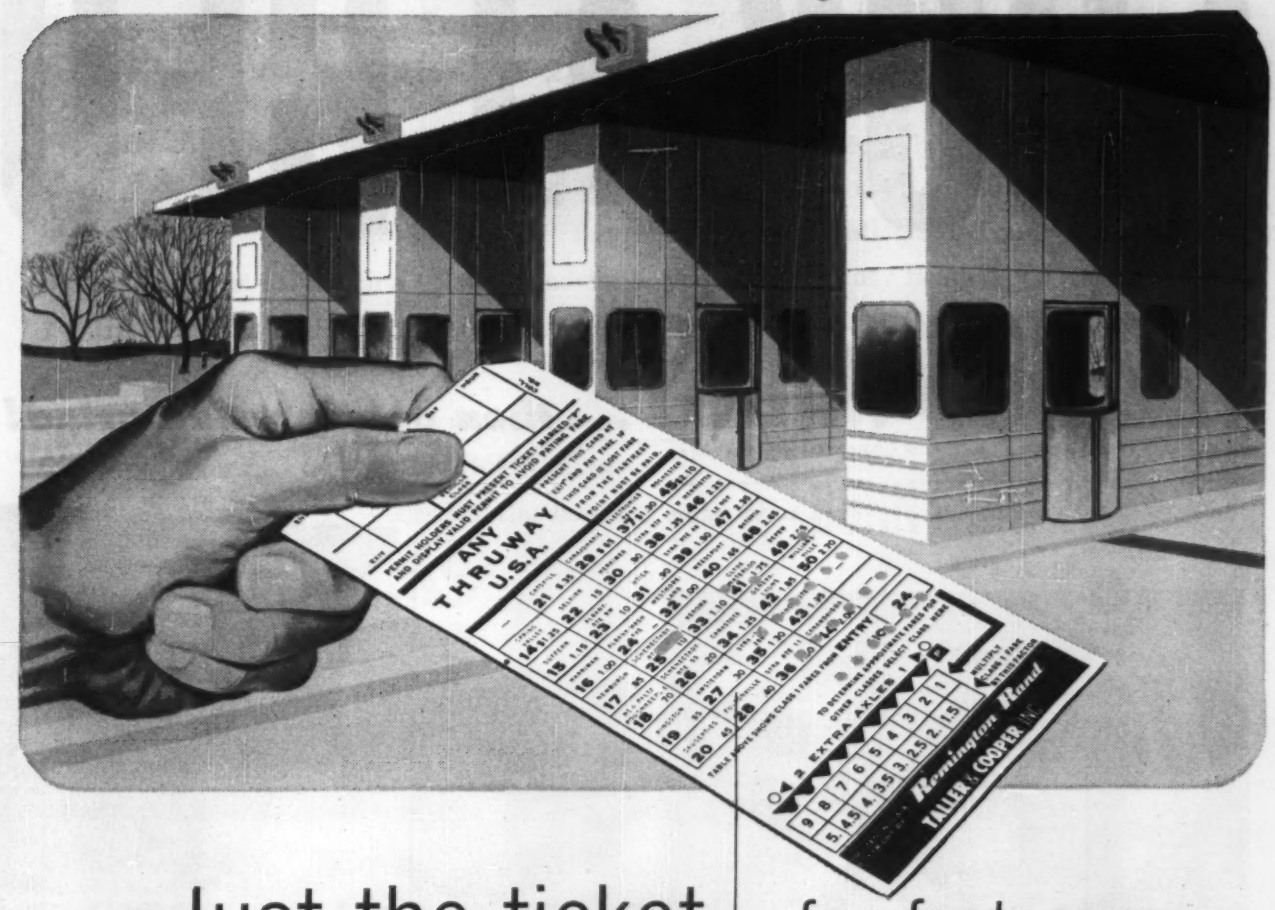
Continuing my chain of thought I sought for a lesson or a moral in what I had observed. I remembered that bridges are usually designed by set formulas, which fix the dimensions of the water way, as well as the size of the beams and steel rods. It then occurred to me that perhaps, in designing a bridge, we should give a bit of thought to what might happen when the waters come up to the deck, as they will if we wait long enough. Perhaps the foundations should go down a few extra feet.

I also got a feeling that continuous frames holding together walls and decks would be more lasting under a stiff push than the conventional deck resting on independent walls.

It also struck me that solid concrete hand rails ought to go. A good, heavy hand rail made of steel shapes and bars would offer much less resistance to the

(*Continued on page 14*)

and now . . . in Kansas, Kentucky, Massachusetts



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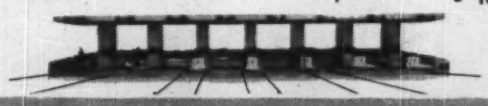

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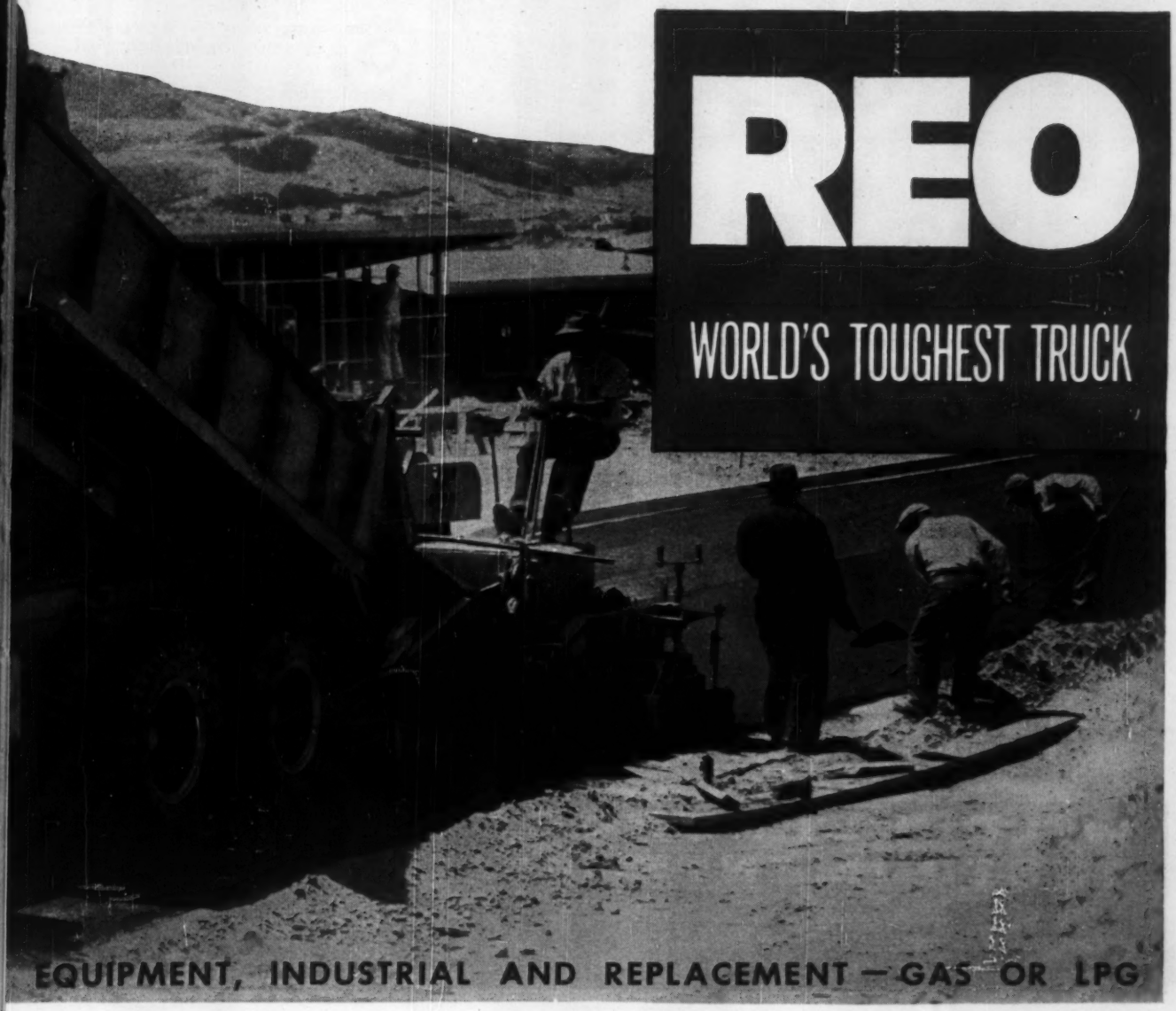

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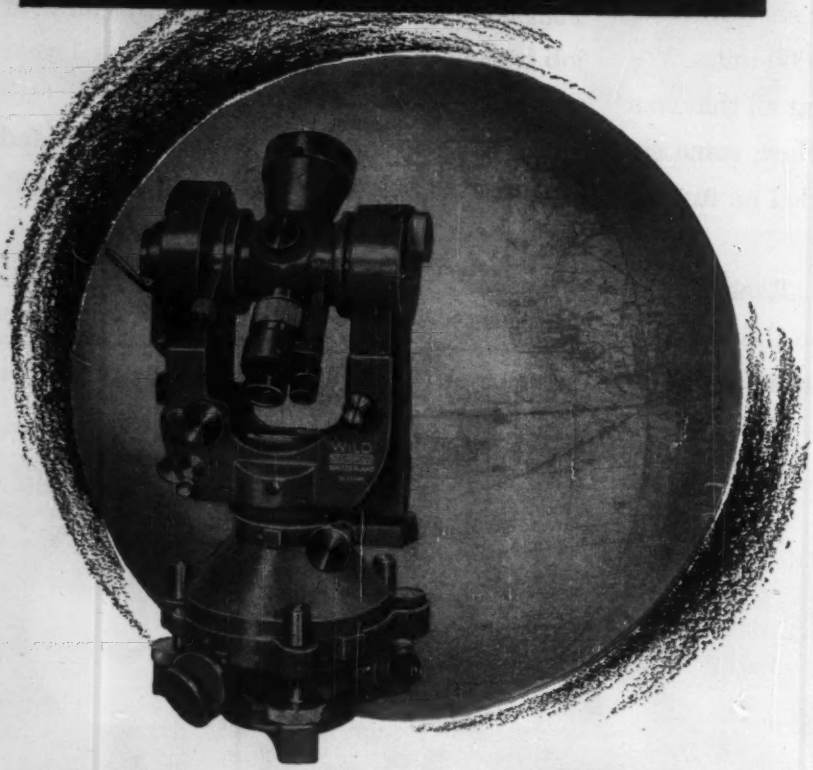

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wall of water that strikes it, and would have the further merit of permitting the traveller to see the stream.

At any rate these are some of the ideas that hit me as I meandered over an area devastated by the rains, and I thought that I woud pass them along for what they are worth.

G. D. Houtman
Civil Engineer
Media, Pa.

Welding Sequence and Cracks

Sir—The article (ENR Nov. 3, 1955, p.32) entitled "Welding Stresses Crack Penstocks" was most interesting to me as I have designed tees similar to those at Garrison Dam, however, not so large. I, too, have also had the problem of field weld cracking of large field assemblies, and can deeply appreciate the responsibility involved.

Perhaps the field welding sequence could have been changed somewhat with satisfactory results. I have seen a certain welding sequence crack 1¼ in. thick webs of a large box girder weighing over two thousand pounds per foot completely in two, and yet when the sequence was changed no trouble was encountered. In fact, this particular girder was built ten years ago and is still giving good service under severe low temperature operating conditions.

Walter E. Riley
Consulting Engineer
Phoenix, Ariz.

CALENDAR

American Road Builders' Association, annual convention, Miami Beach, Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 17-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

National Association of Home Builders, annual convention-exposition, Conrad Hilton and Sherman Hotels, and the Coliseum, Chicago, Ill., Jan. 22-26.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Society of American Military Engineers, annual technical meeting, Palmer House, Chicago, Ill., Feb. 9-10.

Association of Asphalt Paving Technologists, annual meeting, Hotel Cleveland, Cleveland, O., Feb. 13-15.

Associated General Contractors of America, national convention, Waldorf-Astoria Hotel, New York, N. Y., Feb. 13-16.

American Society of Civil Engineers, national winter convention, Baker Hotel, Dallas, Texas, Feb. 13-17.

American Concrete Institute, annual convention, Bellevue-Stratford Hotel, Philadelphia, Pa., Feb. 20-23.

American Concrete Pipe Association, annual convention, Broadmoor Hotel, Colorado Springs, Colo., March 6-10.

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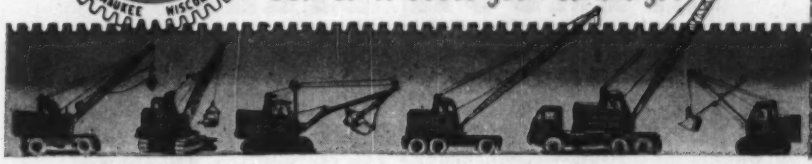

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

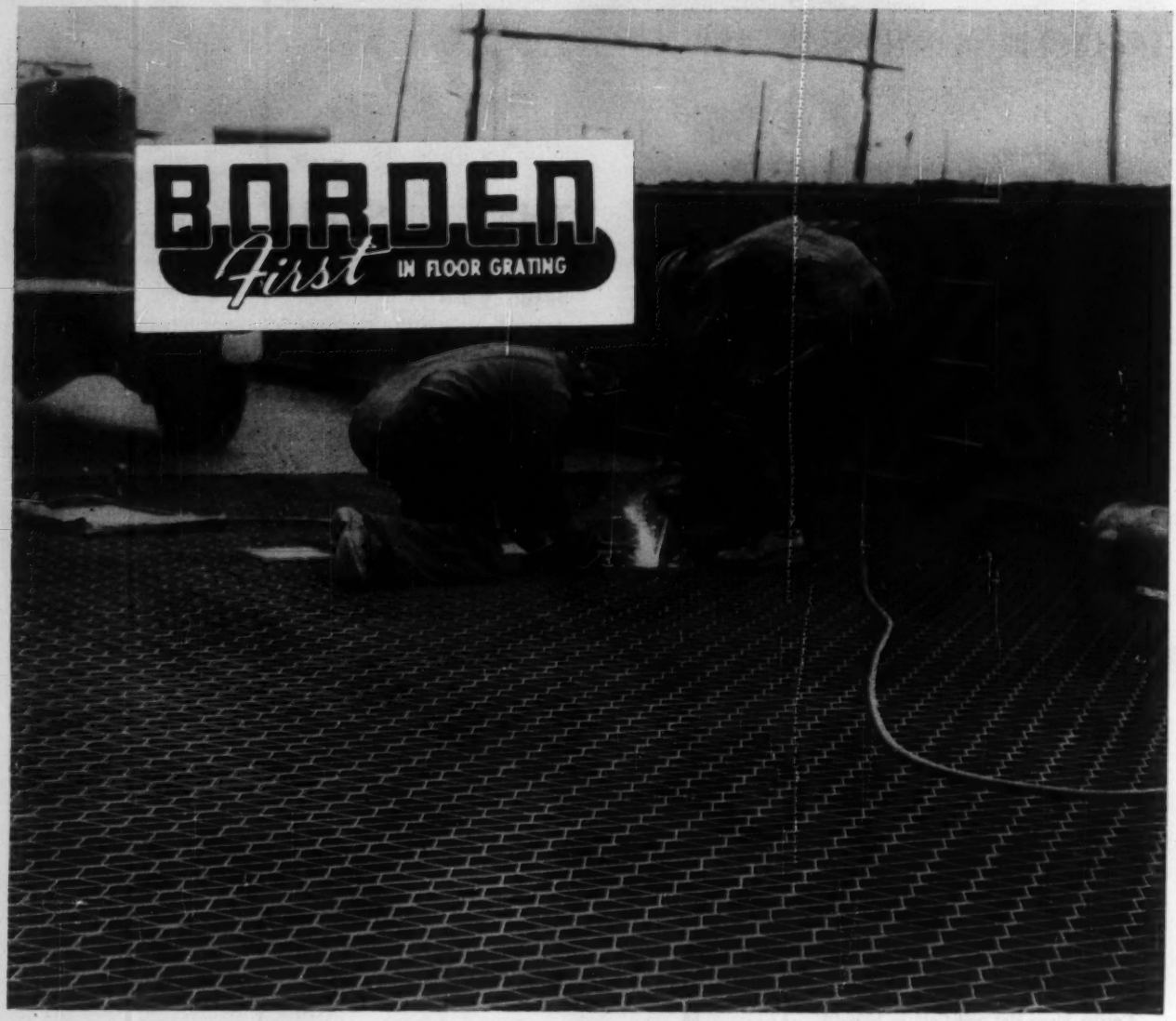
COMPETITION EASES A BIT—At least in some parts of the country, contractors are not finding competition as tough as six months or a year ago, according to findings of an ENR spotcheck of bidding trends (page 21). But, even in those areas where pressure has eased up, the picture is a mixed one. For instance, an easy situation in the building market might go along with a tight situation in heavy construction. Nowhere was there much indication that contractors were boosting their bids higher than the rise in costs.

WHAT HOME BUYERS WANT—A detailed picture of home buyers' preferences in all sections of the country is presented in a Bureau of Labor Statistics study of starts during the first quarter of '55 (page 99). Among the findings: Only 10% of new homes were in the $20,000-and-up class, and 34% were under $12,000. Only 6% of the homes had four or more bedrooms, and only 41% had full or partial basements.

HOPEFUL SIGN—As another year of bemoaning the shortage of engineers draws to a close, the University of Pennsylvania sounds a note of optimism by preparing to accept 50% more students in its five engineering schools next year. New facilities, curriculum modernization, and availability of more instructors through expansion of research and fellowships combine to make the enrollment increase possible.

BRIDGEMEN SPARE THEM TREES—Nature-lovers won a round in their fight to prevent the building of a second floating bridge across Lake Washington east of Seattle when the City Council went on record as opposing "invasion" of the University of Washington arboretum for the Seattle approach to the $18-million structure (ENR Dec. 22, p. 20). Earlier the same day, Washington's Governor Arthur B. Langie blamed the City Engineering Department for some of the problems that developed over the location of the approaches and called for an independent study. End result of the three-pronged attack will probably be to move the proposed bridge site several miles north.

TRUCKERS BEWARE—An infra-red "cateye" by which spotters 30 ft off the highway can identify truck license plates is now operating on the Pennsylvania Turnpike as a means of curbing truckers who violate the speed limit. Instrumentation is adapted from Navy signal equipment. The "trap" in this case is a form of self-policing because it is operated by the Pennsylvania Motor Truck Association.



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WASHINGTON OBSERVER

The construction outlook from Washington for the year ahead is even better than 1955's record. Government-generated contract awards in almost every category will be either as good as this year—or higher.

Military construction will stay over $2 billion for the calendar year—somewhat higher than spending for calendar 1955.

A big program on water resources and public works will be carried along. The $760-million Upper Colorado storage project—one of the biggest public works developments—will probably be started, now that the controversial Echo Park storage dam has been dropped. More partnership projects will be authorized. New England will get a start on new flood-control dams; flood control elsewhere around the country may benefit. Watch for another big bundle of projects to be submitted to Congress for authorization by the Army Engineers and the Bureau of Reclamation.

Highway grants to the states are bound to go higher as the result of Congressional legislation. Even if a big new highway program is not enacted, look for the present grants of $875 million per year to be increased to at least $1 billion. There's still a big question whether taxes on gasoline, tires, and the like can be raised in an election year. Yet it seems unlikely that any big increase in highway spending would be approved by Eisenhower unless the tax money is there to pay for it.

•

Housing starts for the upcoming calendar year will hit at least 1,200,000 if the Administration has its way. That compares with an estimated 1,300,000 this year. Tight mortgage market is expected to ease early in 1956. Officials expect this to take care of the outcry about Administration policy holding housing starts down.

Bids on about 100,000 units of public housing are in prospect as the year opens. Some 55,000 units of this is carried over from previous years, plus 45,000 units authorized this year. Odds are good that Congress next year will authorize another 35,000 per year to keep the program going; Democrats might force the figure even higher.

Urban renewal should produce a growing volume of business next year. This is the program the Republicans passed to broaden slum clearance to get more private builders into modernizing or building new housing in blighted areas. Some 80 cities have already complied with the rules for getting government aid; more than 80 others are on the way toward getting federal approval of their programs.

•

Federal aid to school construction is high on the agenda of both the Administration and the Democrats in Congress. It's counted as a vote-influencer in the campaigning to come. **But the segregation-integration fight can block action,** and many experts feel certain that the issue can't be kept out of the vote on school funds when the chips are down. There's too much election-year dynamite involved for politicians on both sides of the integration issue.

Government's lease-purchase building program gets going next year and should produce as much as $300 million in contracts for federal buildings over the next couple of years. Congress has already approved $105 million of projects, and another $200 million, at least, is in the works.

College dormitory construction will get a big boost from the $500-million fund for federal loans. Some of this money has already been lent out; $250 million has been approved or earmarked; and applications are already on hand totaling more than the balance. Congress may provide more funds for further expansion of this construction program.

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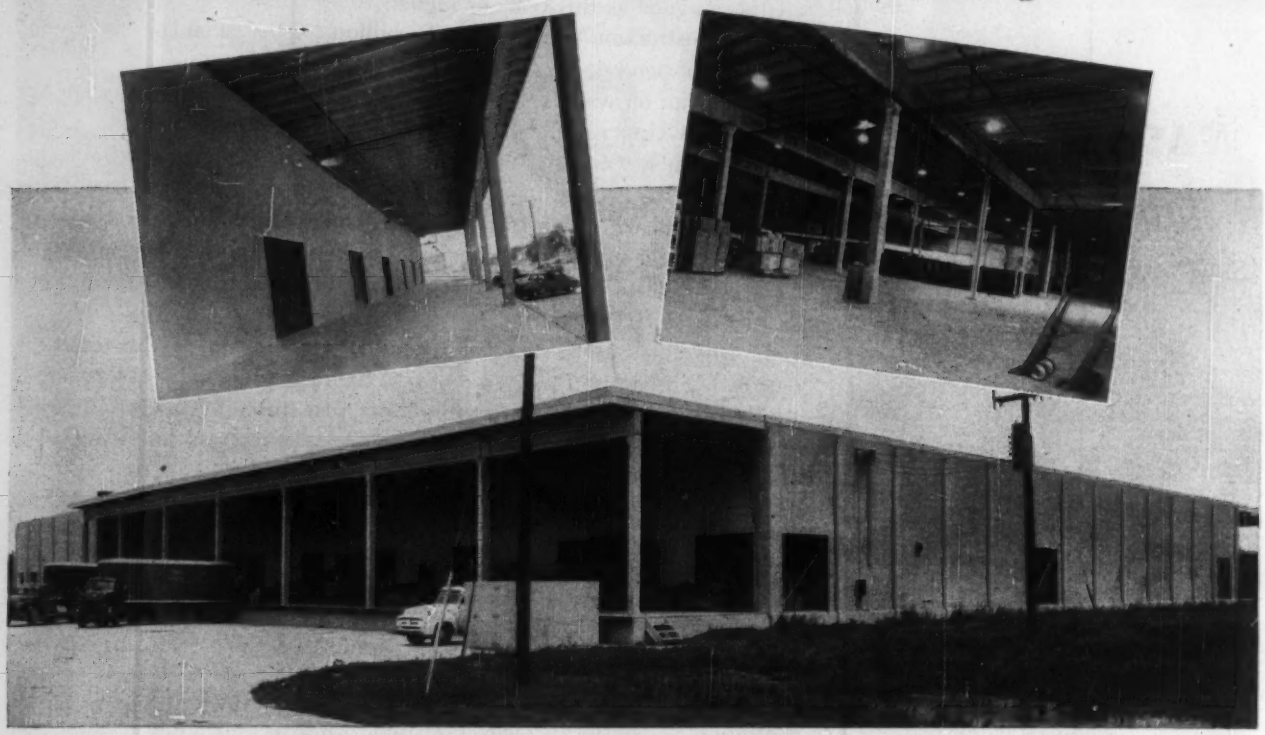

SEARS, ROEBUCK WAREHOUSE COMBINES TILT-UP AND PRECAST CONSTRUCTION FOR MAXIMUM ECONOMY

● This new warehouse for Sears, Roebuck & Company, in Jefferson Parish, Louisiana, with 77,000 sq. ft. of floor space, is prefabricated construction, one hundred percent: Tilt-up walls; precast, prestressed concrete I-shape girders, each 30 ft. x 3 ft., with 12-in. flanges; precast concrete double-T roof panels, each 30 ft. x 5 ft. x 12 in. deep.

Buildings like this go up as slick as a whistle—9500 sq. ft. of girders and roof slabs erected per day. That is the big thing about concrete prefabrication—it makes fullest effective use of every man-hour of time put against it. Manufactured to closest tolerances, for fast erection with minimum supervision, structures like this represent the most effective application of the assembly-line principle to building construction.

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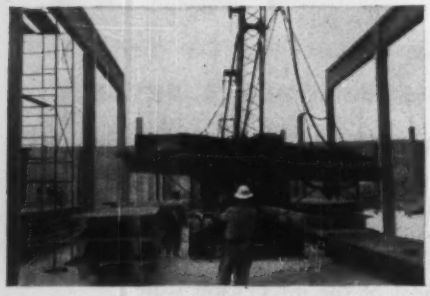

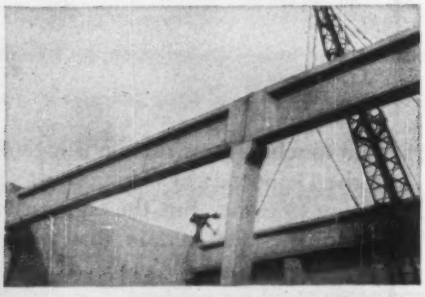

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20-city spotcheck shows .

Job Competition Wanes in Some Areas

ENR Staff Report

Though bidding in general continues to be highly competitive, there are now signs that competition is lessening in some areas.

An ENR spotcheck of bidding trends in some 20 cities indicates a number of breakthroughs in the solid front of severe competition that has confronted the construction industry for the past two years and was still prevalent at mid-year.

In those areas where the pressure is easing, two factors are in evidence: (1) There is enough work coming into the market to keep everyone busy and (2) some of the inexperienced contractors, who were prone to get themselves out on a limb when jobs were harder to get, have fallen by the wayside.

The situation is very spotty. In cities where plenty of building jobs are coming into the market, the heavy-construction field may be very competitive still. In other places, it can be just the opposite. In a few areas, big contractors seem to have all the work they need, while many smaller firms are hungry for jobs.

Those who buy construction—municipal officials, engineers for school boards, corporation officers—concede that contractors are not boosting their bids to allow themselves fatter profit margins. In nearly all cases, higher bids are found to be due to higher costs. And in some places, contractors are absorbing part of the rise in costs—because competition is tough. Even in those areas where competition is easing, there is very little indication that bids are rising faster than costs. Possible exceptions are the mechanical trades—plumbing, heating, and electrical. Bids for this kind of work have a tendency to outpace engineers' prior estimates.

Here are the highlights of reports from areas where ENR found a trend toward less competition.

• **San Francisco**—Here the building market is busier than six months or a year ago, so there is no scramble by building contractors to get work. All building contractors are complaining about the difficulty of getting enough workers.

Bids on school jobs are tending to run slightly higher than estimates. Established school builders, who are apt to bid on large school jobs, have told school officials they aren't willing to bid if there are going to be many bidders. Says one: "I've got all the business I want, so there's no use of my spending money to estimate jobs that a lot of people are going to bid. Lots of jobs are won on errors, and a small contractor might come along and win on the basis of a mistake. The more bids there are, the more chance for a mistake."

Most buyers of heavy construction say the competitive situation is still tight. However, a large local utility notes that not as many bidders are attracted to its jobs as a year ago, and that bids on small jobs show some tendency to exceed estimates. On large jobs, the utility has received inquiries recently from eastern contractors who have never shown any interest before.

• **Seattle**—The situation here is somewhat the same. On heavy-construction jobs, competition is as keen as ever. For instance, on public-works projects, contracts tend to absorb at least part of higher costs of materials. Says one engineer: "Contractors are usually six months behind on their costs, anyway. They always have a feeling they can absorb costs by increasing efficiency, and sometimes they are right."

However, the consensus around Seattle is that keen competition in this field may be nearing its end. More federal-aid highway money is becoming available, and a huge construction program for gas distributing mains is getting started.

In the building field, bidding is easier. One observer thinks competition is a lot less keen than six months ago. He finds that bids are now running close to or higher than estimates, while six months ago they were often way under. A large aircraft firm engaged in a big expansion program says that it is so dissatisfied with lump-sum bids that it is thinking about shifting to the cost-plus-fixed-fee basis. A school official says that the big contractors are not bidding closely on schools because they are tied up already with jobs. But he reports that smaller contractors are hungry.

• **Denver**—Bidding interest here has declined sharply on Bureau of Reclamation jobs. For instance, in the fourth quarter of 1954 and the first three months of this year there was an average of eight bids per construction schedule. In the second quarter, this average dropped to 5.1. In this quarter, the average has been running at 4.2.

But the same isn't true of highway work in the area. Says a highway contractor: "If you bid what a job's worth you can't get it any more. Competition is just as tough as ever. We've had to absorb some of the cost increases."

• **Omaha**—Army Engineers here say that in contrast to earlier this year, when big jobs almost always were bid under estimates, bids in the past six months have been running about 4% over estimates. They believe this is right in line with advancing costs. They say the trend to higher bids is particularly noticeable especially on small jobs.

A consulting engineer adds this: "My impression is that most contractors are not going to gamble. They seem to have the feeling that if

Less Competition Here

San Francisco—Building market easier, but heavy construction still tight.

Seattle—Building easier, heavy construction still very competitive, but some think it will change soon.

Denver—Bidding interest much less now on Bureau of Reclamation jobs. But it's tough in highway work.

Omaha — Contractors getting more conservative on Corps of Engineers contracts.

Cincinnati—Most bigger firms are "billed up" with work.

Cleveland—Heavy backlog of work here in the building market. There's a shortage of skilled workers.

Atlanta—Bids on Corps of Engineers jobs have been climbing noticeably.

. . . Job Competition

they don't get this job, they will get the next one at their price."

His statement is confirmed by a contractor's general superintendent: "We've got about all the work we want to handle. Of course, we will take on more any time. But we want our price."

• **Cincinnati**—One observer here feels that most of the bigger local firms are "billed up" and not bidding on the smaller jobs. He notes that more outside firms are bidding, and thinks they're coming in because of the lack of interest locally. On two recent school jobs, the low bids were well over estimates. This resulted mostly from the plumbing and heating aspects of the contract. However, another source says: "Contractors don't seem to have as much work, and are willing to take a smaller margin of profit."

• **Cleveland**—There has been a significant rise since mid-summer in bids on all types of buildings and on road construction. The reasons are: (1) A heavy backlog of work in large and small office buildings and in public buildings, and (2) a shortage of properly trained craftsmen, particularly in the plumbing and electrical trades. Contractors are basing their bids on the possibility that they will have to pay time-and-a-half or double time when they need workers.

This means the biggest increases in bids come in marginal jobs, like an addition to a school or resurfacing a road. Competition increases with the size of the job. For instance, bidding would be intensely competitive on a prestige item like a major office building.

• **Atlanta**—Though competition seems as keen as ever on most types of work, the local Corps of Engineers office reports it is advertising so many jobs that "contractors are loaded." It says bids have shown a noticeable trend upward in the last two months.

• **Minority report**—There are, however, a couple of cities where competition seems to be tougher than it was six months ago:

• **Buffalo**—Low bids on city work continue 15% to 20% under estimates. The district office of the State Department of Public Works says that six months ago it was not unusual to get a low bid that was 20% over engineers' estimates. But since then, estimates have been getting more realistic. For instance, a recent contract for a stretch of the Thruway was 15% under the estimate. The state office does report, however, that there is less competition on the big jobs, keen and increasing competition on smaller contracts. And a local utility reports bidding is more competitive and the bid spreads much closer than six months ago.

• **Dallas**—A leading architect here believes that contractors are now figuring a smaller profit margin on bids than they did previously. He also notes an increase in bidders from out of town.

• **No change**—The remainder of the 20 cities polled by ENR showed little change one way or the other in bidding. For them, the situation was still tight.

Do the current signs of lessened competition indicate a similar trend in other areas? Underlying the whole situation, of course, is the strength of the construction boom. If it continues to roll up new records in 1956 and again in 1957, it is quite likely that pressure will ease up in more and more places. If on the other hand, the present fast pace of contract awards slows down, the situation will be quite otherwise. But no one now sees that in the cards for 1956, except for a possible small decline in homebuilding. So chances are good that a return to more normal bidding conditions will be further in evidence.

However, ENR's survey demonstrates that the construction market is, to a considerable extent, a local affair. Conditions in one area may be quite different than in another. And it is quite possible that even if the boom continues in high through 1956, there will be some parts of the U. S. where contractors will still be competing fiercely for work.

New President of AASHO

Rex M. Whitton has assumed the presidency of the American Association of State Highway Officials, succeeding Frank D. Merrill (Maj. Gen. Ret.) whose death followed his election to the post by a matter of hours (ENR Dec. 15, p. 27).

Whitton, who was elected first vice president at the association's annual meeting three weeks ago, takes over automatically in accordance with the organization's constitution. He started with the Missouri State Highway Department in 1920 as a member of a survey party, and, advancing through practically every phase of highway engineering, became chief engineer in 1951.

Whitton is chairman of AASHO's Committee on Maintenance and Equipment, and during the past year served on the Legislative Committee.

Court Denies Injunction On Carquinez Contract

The $9.5-million U. S. Steel Corp. contract for the superstructure of the Carquinez Straits Bridge is valid according to a San Francisco Superior Court ruling.

The court has denied a petition for a writ of mandate filed by the second low bidder on the San Francisco Bay project—a joint venture headed by Judson Pacific-Murphy Corp. The JPM group claimed the low bid was not valid due to irregularities in the contractors license held by U. S. Steel. The ruling said, in effect, that although the bid was made in the name of American Bridge Division of U. S. Steel Corp. it was, in fact, a bid by U. S. Steel Corp.

Bids on the cantilever bridge were opened early this month. The largest job, and the closest bidding, was the superstructure contract (ENR Dec. 8, p. 27). U. S. Steel's bid was $9,489,126, while the joint venture's was $9,523,960—a spread of less than $35,000.

The court's ruling on the case will be appealed. Meanwhile, JPM has filed charges with the California State Contractors License Board claiming the U. S. Steel license is invalid because the corporation had not notified the board of a change in management.

According to the JPM charge, the law requires notification of the changes in the "responsible managing employee." And JPM claims that U. S. Steel's license had the name of C. E. Webb, chief engineer of the American Bridge Division, on file as the responsible managing employee. JPM says that Webb retired last May—and since the board was not notified—U. S. Steel's contractors license should be in a suspended state.

More School Money

Pennsylvania goes to work on state-aid bottleneck

The lower house of the Pennsylvania legislature has voted to remove the two-year bottleneck on state aid for school construction.

It approved—and sent to the Senate—plans for an expanded school-building program that includes raising the ceiling on the borrowing power of the State School Building Authority from $425 million to $925 million.

The $425-million limit on authority-financed school construction subject to state aid was reached two years ago. Under the new plan, the ceiling would be increased immediately by $200 million, and then by $100 million more on July 1 of the next three years.

Another major phase of the program calls for setting the state-aid limit for new elementary schools at $1,100 per pupil, and for new secondary schools at $1,700 per pupil. At present the per pupil cost runs all the way from $400 to $2,100 at the elementary school level.

Per pupil limits have been proposed in an effort to hold down the level of "frills." But the State Public Instruction Department expects the ceilings to give districts about the same amount of reimbursements now, if construction costs are held to a conservative average cost. Where costs exceed the average, the districts would make up the difference.

Two other major changes:

- The State Public Instruction Department would be required to make a complete survey of the adequacy of existing school facilities before any building plans are approved for state help.
- Construction projects by school districts based on issuance of general obligation bonds would become eligible for state reimbursement. At present only municipal-authority financed projects are eligible.

Since the $425-million limit on authority-financed school construction was reached in 1953, the Public Instruction Department has received 286 applications for state-aid projects. The proposed work amounts to $225 million. The department also has approved $74 million in additional work, with the understanding that unless more money is made available by the legislature there would be no state payment.

General practice in state-aided projects is for the State Public School Building Authority or local authorities to build the school facilities and rent them to the school district. Rental payments are used to pay off the bond obligations. State aid pays for part of the rent, usually about half.

A Joint State Government Commission report on public school building subsidies observed that since 1950—a year after the Public School Building Authority was created—about 85% of school construction was financed by authorities and only 15% by school districts.

Utility District Reveals Long-range Power Program

East Bay Municipal Utility District—serving 13 northern California communities—plans to spend $93.6 million between now and 1983 to develop more dams and power plants along Mokelumne River. The long-range plan was announced when the district applied to the State Division of Water Resources for an additional 125 mgd of Mokelumne River water.

The building program calls for construction of three dams, two power plants, a tunnel, aqueduct and pumping plant. It also includes enlarging Pardee Dam and power plant.

Under the proposed timetable the aqueduct would be built in 1962; Middle Bar Dam and power plant, 1966; Pardee Tunnel, 1972; pumping plant, 1973; crest gates at Pardee Dam, 1977; Camanche Dam and power plant, 1978, and Railroad Flat Dam, 1983.

Failure to Build Sewage Plant May Cost $5,000 a Day

City Manager W. S. Orr has told the City Council of Niagara Falls, Ont., it may have to pay a fine of $5,000 a day if it fails to build a sewage-treatment plant by next July.

He said the International Joint Commission on Pollution of boundary waters is seeking approval from Washington and Ottawa to fine municipalities that fail to construct plants.

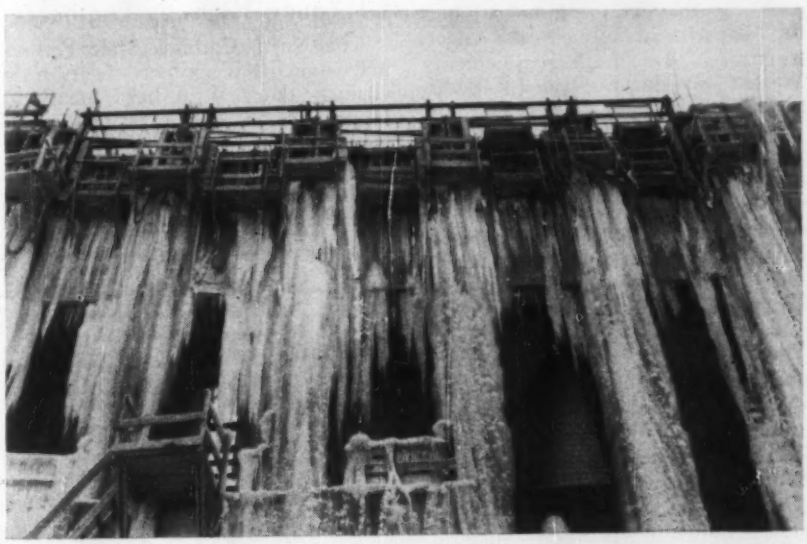
The commission is acting to reduce pollution of boundary waters. Orr said most pollution is caused when Buffalo industries dump waste into the Niagara River but added, "we're also polluting the water."

He estimated the cost of a sewage plant at $1,750,000 to $3,000,000.

$25 Million Will Be Spent On New Wisconsin Highway

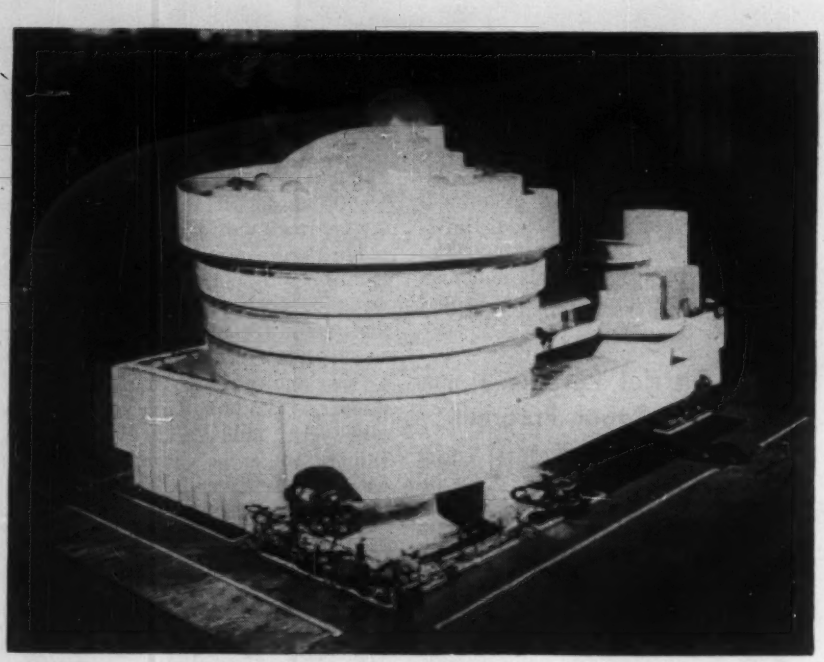
The Wisconsin Highway Commission is preparing plans for construction of a $25-million, four-lane highway from the Illinois state line to Milwaukee, parallel to Highway 41.

In making the report, Harold L. Plummer, commission chairman, said that the commission will complete acquisition of a 27-mi stretch of right-of-way early next year and construction of the highway would start in 1957. At the Illinois line, this new expressway would connect with the Tri-State toll highway soon to be built.



Deep Freeze Delays Dalles Dam

The coldest winter weather in 85 years of record keeping has hit the Portland, Ore. area and with it has come a delay for most construction projects. Hardest hit was the Corps of Engineers' Dalles Dam where work was shut down for a period of ten days. The Corps is expected to grant corresponding extensions on all major contracts under way, but work was on or ahead of schedule, so some contractors may be able to absorb the lost time. On the basis of money spent, the $300-million project is 45% complete. Shown above is the ice condition on the fishway exit.



Approve Spiral-Ramp Museum

Prospects brightened considerably for Frank Lloyd Wright's unusual spiral-ramp design for a museum of contemporary art to be built in New York City, when the city's Board of Standards and Appeals ruled favorably on it last week.

The ruling may end a controversy of many years' standing between Wright and the New York Building Department, which has delayed construction. In effect, the disagreement was over the classification in which the department placed the novel structure. To meet requirements, Wright would have had to modify his design radically.

The museum, to be built on Fifth Ave. between 88th and 89th Sts. for the Solomon R. Guggenheim Foundation, will be a circular structure, wider at the top than at the botton, seated on a rectangular base. Inside, a spiral ramp on a 5% grade will make five turns around the building. The walk will be lined with works of art. There will be no horizontal floors and no interior columns; exterior columns will be located along the outer walls.

A separate, interconnected, four-story, circular building on the 201x120 ft site will contain office space and reading room. And at one corner of the museum will be a restaurant.

The building will be of reinforced concrete construction. The ramp, in effect, will be a huge concrete spring, with fixed inside diameter and outside diameter increasing with height. Average outer diameter will be 80 ft following the outer edge of the ramp, the walls will be of cast-in-place lightweight concrete, with a pneumatically placed exterior concrete surface. It will be finished with a plastic paint in which fine sand of selected colors will be embedded. Construction cost is estimated at $2.5 million.

Jacob Feld, New York City, is consulting engineer. This is the first time that Wright has employed an outside consultant.

North Carolina Boosts Pay Of Young Highway Engineers

The North Carolina State Personnel Council has approved salary scale changes designed to help the State Highway Commission attract more young engineers.

Graduate engineers now may be started at $3,948 a year, formerly the second step in the salary scale.

Big Dam in Canada

Negotiations are begun for $500 million project

Moran, on British Columbia's Fraser River, may be the site of one of the largest dams in the world—at least, negotiations for its construction have begun. A part of a $500 million, 2,700,000-kw capacity hydro project, the dam would be 720 ft high and create a reservoir extending 165 mi to the north.

The project would be under the supervision of the Moran Power Development Co., which was incorporated in July and of which Hans A. Eggers of New York, former president of Continental Can, is one of the directors.

First reports of the project include word that the Continental Can Co. was a backer and had proposed building of a $200 million aluminum smelter at New Westminster on the Fraser River or Squamish on Howe Sound. However, Frank Whittall, Continental's Canadian president, later denied that his company had any connection with the plan.

Engineers and Geologists have been working on the proposal for some time, and Lands and Forests Minister R. E. Sommers confirmed he had received the proposal several months ago from the Moran Company.

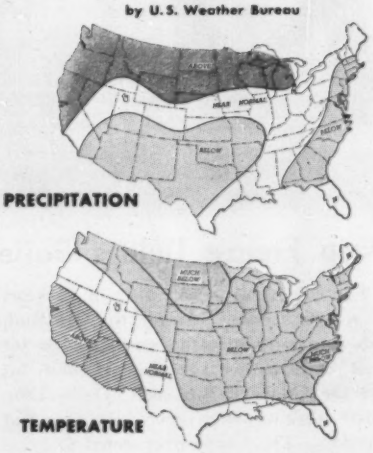
Federal Fisheries Minister James Sinclair said his department was "unalterably" opposed to the idea of the high-level dam and would never approve such a project. "We're even opposed to low-level dams on the Fraser," he said.

Moran interests say use of elevators to lift spawning salmon over the top of the dam would be used. The fish would be diverted towards the bucket-lift system by electrical impulses.

30-DAY WEATHER OUTLOOK

Mid-December to mid-January

by U.S. Weather Bureau



The Weather Bureau's 30-day outlook for mid-December 1955 to mid-January 1956 calls for temperatures to average above normal in the Southwest and near normal along the Gulf Coast and in northern New England. In the remainder of the country below normal temperatures are expected, with the coldest weather in the northern plains.

Greater than normal amounts of snow are indicated in the northern third of the nation from the Great Lakes westward to the Pacific Coast. Rainfall is expected to be above normal along the West Coast and below normal in the East. Subnormal precipitation is indicated in the southern half of the country, except near normal in the Tennessee Valley and along the Gulf Coast.

Special Session Will Scan Baltimore Port Plan

The threat of competition from the St. Lawrence Seaway and the strides being taken by other Atlantic Coast states have prodded Maryland to build up port facilities at Baltimore.

Gov. Theodore R. McKeldin has decided to call a special session of the state legislature—probably the week of Jan. 23—in an attempt to put through a bill setting up an autonomous authority for the Port of Baltimore.

The idea of port promotion has been building up for some time in the minds of Maryland officials. The need for activity was hammered home last spring when the New York City engineering firm of Knappen-Tippetts-Abbett-McCarthy recommended improvements totaling $136.7 million and creation of a Maryland Port Authority (ENR, March 3, p. 24). And its importance was re-emphasized this month when a joint Port Study Commission called for a five-man authority with broad powers to promote trade, build facilities, and acquire land under eminent domain.

The joint Maryland-Baltimore commission cited the necessity for general cargo and grain-handling facilities, wider and deeper channels and public anchorages for deep-draft vessels. It set the cost of facilities needed today—not counting the sum to be paid for city-owned property—at somewhere near $10 million.

An important part of the financial picture is the commission's estimate that the annual operating budget of the new authority will run in the neighborhood of $950,000. On the other hand, income from newly-acquired property plus other sources would come to about $680,000.

The commission's report made it clear that bonds based solely on marine terminal revenues could not be sold easily. Therefore, the bonds must be supported by a guaranteed income in addition to or in place of these revenues.

Practically every Maryland leader recognizes the need for a port authority but the big problem has been to work out a financing plan that will be acceptable to all parties.

• **Financial plans**—Last week the state's leading legislators seemed to have come to terms on the method of raising money to support the authority. They approved assessing a ¼ cent tax on gasoline, calculated to bring in about $2 million a year.

But this plan—even before it has been launched in the legislature—has run into rough water. Oil and automobile groups have announced that they will fight any attempt to place the burden of port authority financing on the driving public.

The original financing scheme, suggested by the commission in its report, was an unusual proposal that went beyond methods already adopted by Philadelphia and New York. Under this plan tolls from the Baltimore Harbor Tunnel and three widely-separated bridges—the Chesapeake Bay, Susquehanna and Potomac River bridges—would be used to pay for operations of the new port authority and to retire bonds issued by it.

But this use of pooled revenues seems to have gone down in the face of opposition from county groups that don't want to see bridge tolls continued indefinitely. Critics of the plan concede that the Baltimore Harbor Tunnel is closely related to port operations. But they point out that the Susquehanna River Bridge is located in the northeast corner of the state, the Chesapeake Bay Bridge is near Annapolis, and the Potomac River Bridge is in southern Maryland.

While the main problem is to provide the authority with a long-term and continuing income, there is need for money now to carry out an immediate program suggested by the commission. This involves:

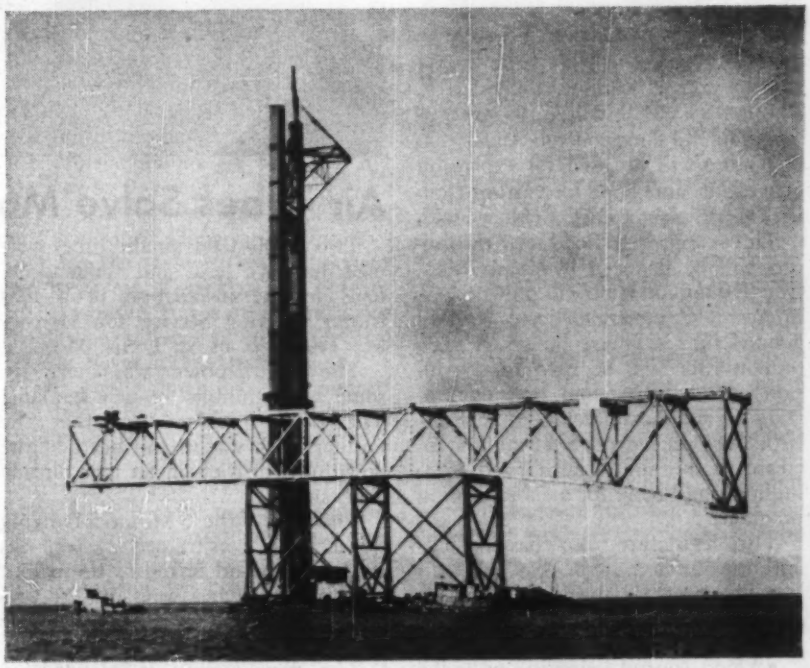
• Acquiring the McComas St. Terminal, the National Gypsum Co. Pier, and the Broadway Pier facilities from the city. This would give the authority immediate income to finance part of its operations.

• Providing needed general cargo facilities. This would cost an estimated $10 million.

• Promoting the port. This would take about $300,000 annually.

As visualized by the commission, the port authority's functions would include developing a master plan for the port, trade promotion, carrying out dredging not performed by the Corps of Engineers, maintaining publicly-owned building facilities, buying up land and facilities for port and industrial development. It would also purchase and develop required facilities if private interests can't be persuaded to do so on a satisfactory basis.

The authority's powers would be limited in a number of ways. It could condemn land only with the approval of the local government involved. The local governments would retain power to tax the condemned property, but instead of taxing improvements erected on such land, it would work out an agreement with the authority whereby the authority would pay a certain sum annually to the city or county involved.



Mackinac's First Span Towed to Position

While a creeper-traveller erects steel on the 552-ft-high north tower of the 5-mi-long Mackinac Straits Bridge (ENR Jan. 27, p. 35), tugs and barges move past carrying the 472-ft, 750-ton backstay span to its position at the south end of the bridge. Installation of this span in its position between the anchorage and cable-support pier will provide easier access to the work sites.

Road to Recovery

Connecticut approves plan for flood reconstruction

The Connecticut legislature wound up its special flood session by approving a $36.5-million financing and reconstruction program.

Early in the session it looked as if the financing plan would set off a political battle (ENR Dec. 15, p. 27). But the legislators compromised on temporary tax-increases to raise $15.5 million and they also approved withdrawal of $15.5 million from the State Highway Fund to pay for repairs to state highways and bridges.

The program authorized by the special session will boost the sales tax as well as taxes on amusements, cigarettes, liquor, corporations, public utilities and domestic insurance firms. It will also extend the 2-cent-a-gallon increase in the state gasoline tax slated to expire in July 1957.

Some $14.5 million of the money will go toward rebuilding town roads and bridges; $1.7 million, to aid towns with redevelopment; $1.7 million, in grants to towns to make up for tax losses; $1.2 million, for repairs to schools and public buildings. Another $700,000 was voted the State Development Commission for local planning and redevelopment of flooded areas.

In addition, the legislature authorized several projects designed to help cut down losses from any future flood. The Water Commission will receive $80,000 to survey dams as to proper construction, location and design. Another $500,000 will go for soil conservation and flood control. And $500,000 more will be used for expansion of weather and flood-forecasting facilities at Windsor Locks' Bradley Field.

Three approved flood-related projects will be financed by bond issues. One $10-million issue will provide low-interest-rate mortgage loans to aid flood victims in buying houses. A $1.5-million issue will be used for expansion of moderate-rental housing program to aid the homeless. The legislators also agreed on a $1-million increase to the already-authorized $2.3-million bond issue for a shore erosion program.

The legislature also passed bills authorizing:

- The State Highway Department to pay pre-flood value for property taken for highway right-of-way.
- Flood control commissions to be set up in various municipalities. One—in Park River—has authority to issue up to $10 million in bonds for flood-control measures in the Greater Hartford area along Park River.
- One year's full deduction of flood damage and loss from the corporation business tax.
- Towns and municipalities to issue notes to meet temporary dire emergencies.

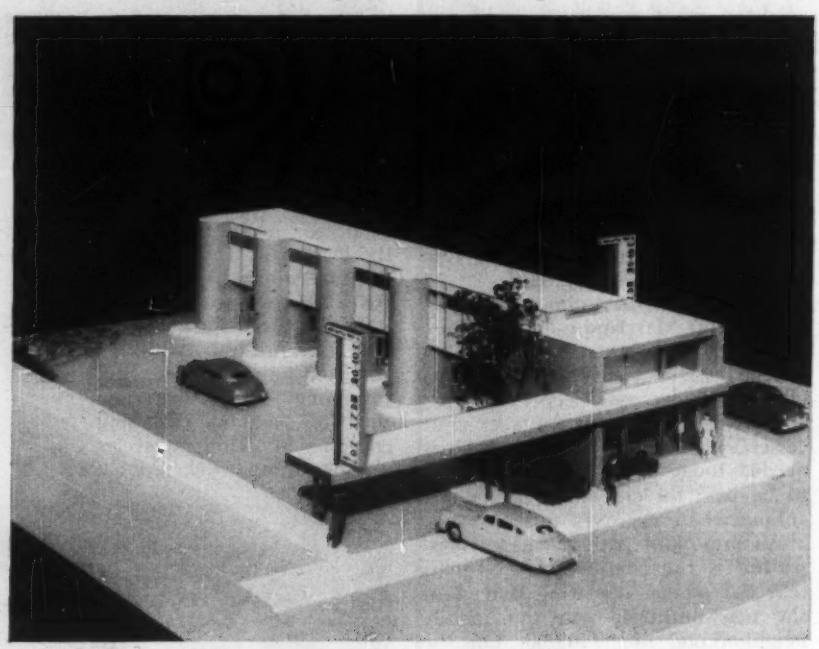
One non-flood bill drew controversy but was allowed to die without action in the Senate. This measure would have permitted towns to be exempt from a requirement that their engineering work be performed by licensed engineers.

Soap Lake (Wash.) Says "No Soap" to Fresh Water

City fathers of Soap Lake, Wash. are all in a lather with the U.S. Bureau of Reclamation for diluting their natural resource, the high-mineral lake that has made the town a health resort.

Fresh water is draining into the soapy-looking water of the lake from irrigation canals of the Columbia Basin, but Soap Lake's City Council washes its hands of any deal by which U.S.B.R. would pump an equal flow back into the Columbia. It's not flooding of their town that bothers them, as the lake level rises; it's dilution of their all-purpose mineral water and eventual loss of it that pumping would cause.

The council wants the bureau to intercept the fresh water entering the lake. The bureau already intercepts some and plans to do more.



Air Tubes Solve Motor Banking Problem

Two 1,100-ft pneumatic tubes were used to solve legal and traffic problems in the installation of a new Motor Banking Service for Mercantile Trust Co. of St. Louis, Mo.

The legal problem was that Missouri law prohibits branch banking. The traffic problem was that the mother bank was in the heart of the downtown district—in an area already congested.

Therefore the Motor Banking Service was constructed two blocks to the north and linked to the parent structure in such a way so as to provide, for all practical purposes, a single banking operation.

The new facility is a two-story red-brick and glass structure with three windows to serve pedestrians and four drive-up windows for motorists. Carrier cylinders can be dispatched from any of the seven windows. Tellers place deposits in the tubes, which are whisked to the large bank by an underground route to be processed and returned.

Each of the two steel "air tubes" is encased in tar-treated paper for weather protection. They are laid about six feet below street level in a 16-in. galvanized iron pipe. It took three weeks for the intrenchment job, since the tubes circumvent three sewers, numerous utility lines and telephone conduits in the two-block route.

The glass-fiber carrier cylinders travel through the tubes at about 30 sps. An automatic switching system permits the sender to control the destination of a carrier by setting a dial on the cylinder's head.

The motor banking facility has the latest security devices, including bullet-proof windows and doors. However, the tube procedure makes it unnecessary to keep a cash reserve.

It Takes Teamwork

New plant for treatment of waste pickling liquor sponsored by steel firms

Seven major steel companies have teamed up to try to solve the problem of treating and disposing of their waste pickling liquors.

The companies will co-sponsor construction and operation of a demonstration plant that will use a new process to produce only re-usable materials with no by-products.

A semi-commercial unit, rated at 650 tons of sulfuric acid per year, will be erected to treat spent acids from Republic Steel's Niles, Ohio, works. Blaw-Knox's Chemical Plants Division will handle engineering and construction of the unit as well as operate the facilities. The initial operation is scheduled for late next summer.

Sponsors of the undertaking also include Jones & Laughlin, National Steel, Pittsburgh Steel, U. S. Steel, Wheeling Steel and Youngstown Sheet & Tube.

The volume of pickle liquor in the U. S. is estimated at more than 600 mg per year. The predominant method of treatment calls for neutralizing the acid content with alkalis and discharging the resultant sludge into lagoons where the material is dewatered. This process is not satisfactory because of the high cost and the difficult disposal problem presented by accumulation of large quantities of sludge.

In the new process the entire sulfate equivalent of the waste pickle liquor is regenerated as fresh sulfuric acid for re-use in pickling of steel. The iron in the pickle solution is recovered as essentially pure iron oxide, which is recharged to the blast furnaces.

SuccessfulCampaign

Fight against Ohio River pollution brings results for 1,600,000 residents

Pollution-control facilities serving 1,600,000 Ohio Valley residents have been placed under construction this year or financed for an early start.

This progress in the regional campaign for clean streams has been outlined in a report to the governors of eight states represented by the Ohio River Valley Water Sanitation Commission.

Summarizing developments in Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia, the interstate commission reports that:

- 636 municipalities are now served by sewage-treatment works. This means that 4,300,000 out of the 9,600,000 sewered population is taken care of by these facilities.
- 53 municipalities are constructing sewage-treatment works.
- 67 municipalities represented by the Allegheny County (Pa.) Sanitary Authority have taken bids for construction.

Now that the municipal treatment program is advancing the commission is anxious to expedite its industrial-waste control program. One of the interstate agency's accomplishments during 1955 was the adoption of policy and procedures for setting up controls. This action followed two years of intensive study of the experiences and views of some 150 major industries in the valley.

Of the 1,424 industrial plants discharging effluents into streams of the district, 36% now have facilities rated as adequate and another 34% provide partial control. At present 40 new industrial-waste control installations are under construction and 132 control plans are completed or in preparation.

State vs. U.S.

Compromise is suggested for ending controversy over San Luis Project

A compromise plan may settle federal-state conflict over construction of the $399.2-million San Luis unit of the Central Valley Project in California.

The dispute has been over whether the project should be built by the U. S. or by the state.

The compromise plan—worked out by a California Congressional group—calls for the state to build the dam and reservoir as part of its Feather River project. But part of the water would be reserved for the federal Trinity River reclamation project.

The congressmen have announced that they will enter a bill next month calling for the form of collaboration.

The San Luis Project involves a dam-reservoir-canal system to bring water 500 mi from northern California to water-shy southern California (ENR March 10, p. 22). The Bureau of Reclamation has proposed building the unit in connection with its $219-million Trinity River water and power project. The state wants to build it as a part of its $1.6-billion Feather River project.

In both cases the major feature of the project would be the dam and reservoir on San Luis Creek near Los Banos in the central part of the state. The federal plan calls for a reservoir with a capacity of 1,000,000 acre-ft of water. This would be used to irrigate 496,000 acres on the west side of the San Joaquin Valley. The state proposes a reservoir with double the capacity of the federal facility. And under the new compromise suggestion part of the water would be used for the west side irrigation project; part would be channeled down for metropolitan use in Southern California.

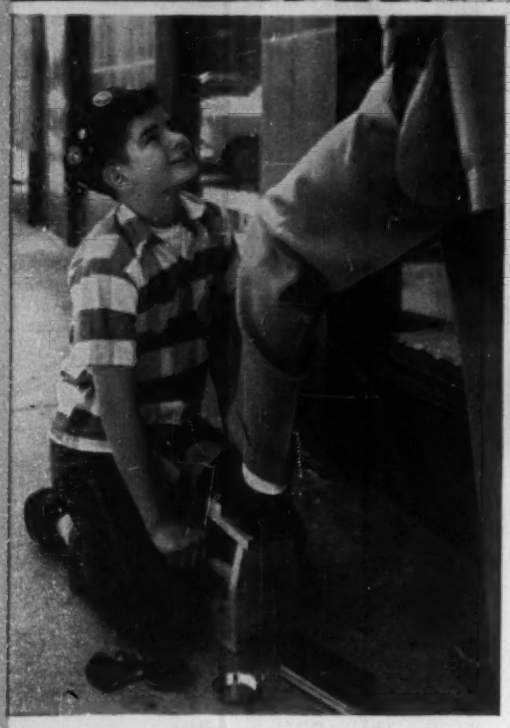
Earlier this month the Reclamation Bureau recommended federal construction of the San Luis unit; Secretary of Interior Douglas McKay has forwarded the bureau's proposal to interested state and federal agencies for comment. But he is withholding approval until he learns California's position on possible state construction.

Collectors Produce Water For a New Silicone Plant

Two collectors are being used to provide ample water supply for a new $14-million silicone plant on the Ohio River at Long Reach, West Va.

The wells, placed about a mile apart, collect water 35 ft underground, utilizing the natural filter provided by the thick bed of sand and gravel underlying the site and the Ohio River. To meet present requirements, 6 mgd of water is pumped into the area of the Linde Air Products Co. plant. But the daily capacity could be boosted by an additional 3 mgd or 6 mgd.

The well water is of relatively low and uniform temperature—45 to 65 deg—as compared with the near-freezing to 85 deg range of the river water. This serves to double the cooling efficiency for process use. In addition, the entire plant supply is chlorinated to avoid a dual network of pipes and to eliminate the possibility of organic growths in piping or equipment.



"Boy, that new highway sure helped us businessmen!"

Here's what happened in one Ohio town as part of that state's expanding highway program. Know how your own state is handling its traffic problem?

Ted's only ten but he's got a good head for business. So when he heard all the talk about taking the state highway off Main Street and running it out around his Ohio hometown, he paid attention. The barber argued a bypass would hurt business. Mr. Keyser at the hardware store was worried, too. Ted wondered if it was such a good idea at that.

Then the bypass was finished, and what happened? Fast-moving through traffic let the town alone and local trade found a place to park once more. Main Street relaxed: it became possible again to get a leisurely haircut, pick up those wood screws and window screen . . . and stop for a shine. And business picked up. In a town like Ted's, for example, merchants say business went up some 12% to 20% after their bypass was finished.

Bypassing villages is only one phase of Ohio's highway program. 4000 miles of road have been built or improved in the past five years. A new 326-million-dollar turnpike now links the Pennsylvania and Indiana lines. 150 to 200 million dollars will be spent each year for the next five years. That will not solve all the problems, but the traffic picture in Ohio gets brighter all the time.

Your own state has a sensible road program, too. Write your Highway Commissioner or Governor and find out what it is, if you don't already know. Study it. Then, as an informed citizen, let your feelings about it be known.

After all, it affects you as much as it does Ted. Maybe more.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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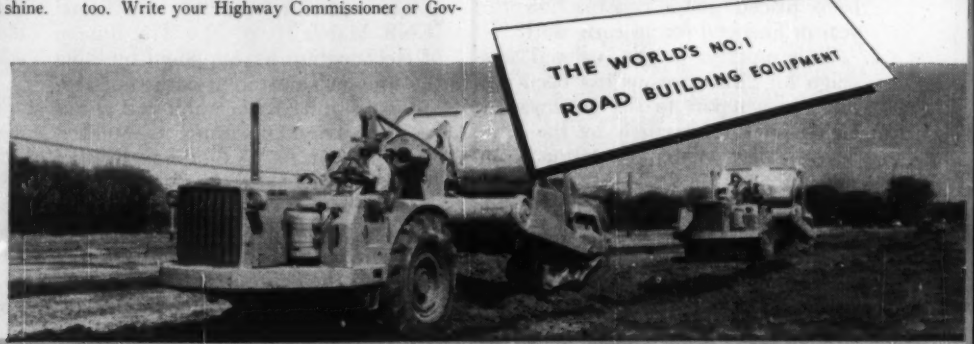

Wherever you see Caterpillar machines working on your roads, you can be sure your state is getting its money's worth.

The need for better roads

and the machines to build them

ON THE opposite page is a black and white reproduction of a recent full-color Caterpillar advertisement. It is one of a long series that has appeared in *The Saturday Evening Post*, *Time* and *Newsweek* since 1949, calling public attention to the sad plight of the nation's highways. The task of arousing car owners and taxpayers isn't finished. We shall continue to drive home the need for new and safer roads, confident in the skills of the contracting profession to get the job done, and in our own ability to develop equipment with which to do it.

One example of this better equipment is the new CAT* D8 Tractor, Series D and Series E. While this machine bears the name of the world's most famous crawler, it's *new* from the ground up! From its new 7-roller track frame to its new 191-HP, 1200-r.p.m. engine, it's built to deliver more production than any previous D8.

Other new features include optional torque converter or direct drive . . . up to 7.4 m.p.h. in high . . . starting from the seat, with a new, more powerful starting engine . . . hydraulic booster steering . . . "live-shaft" drive, with constant power for cable controls . . . 118-gallon fuel tank. And it's a *bigger* tractor than the former D8, with 13-inch ground clearance, greater track length and ground contact, over 20 tons of operating weight.

The D8 is yours for more production and greater profit. Your Caterpillar Dealer, furnishing prompt service and genuine parts, will be glad to show you how this *new* big yellow machine can pay off for you!

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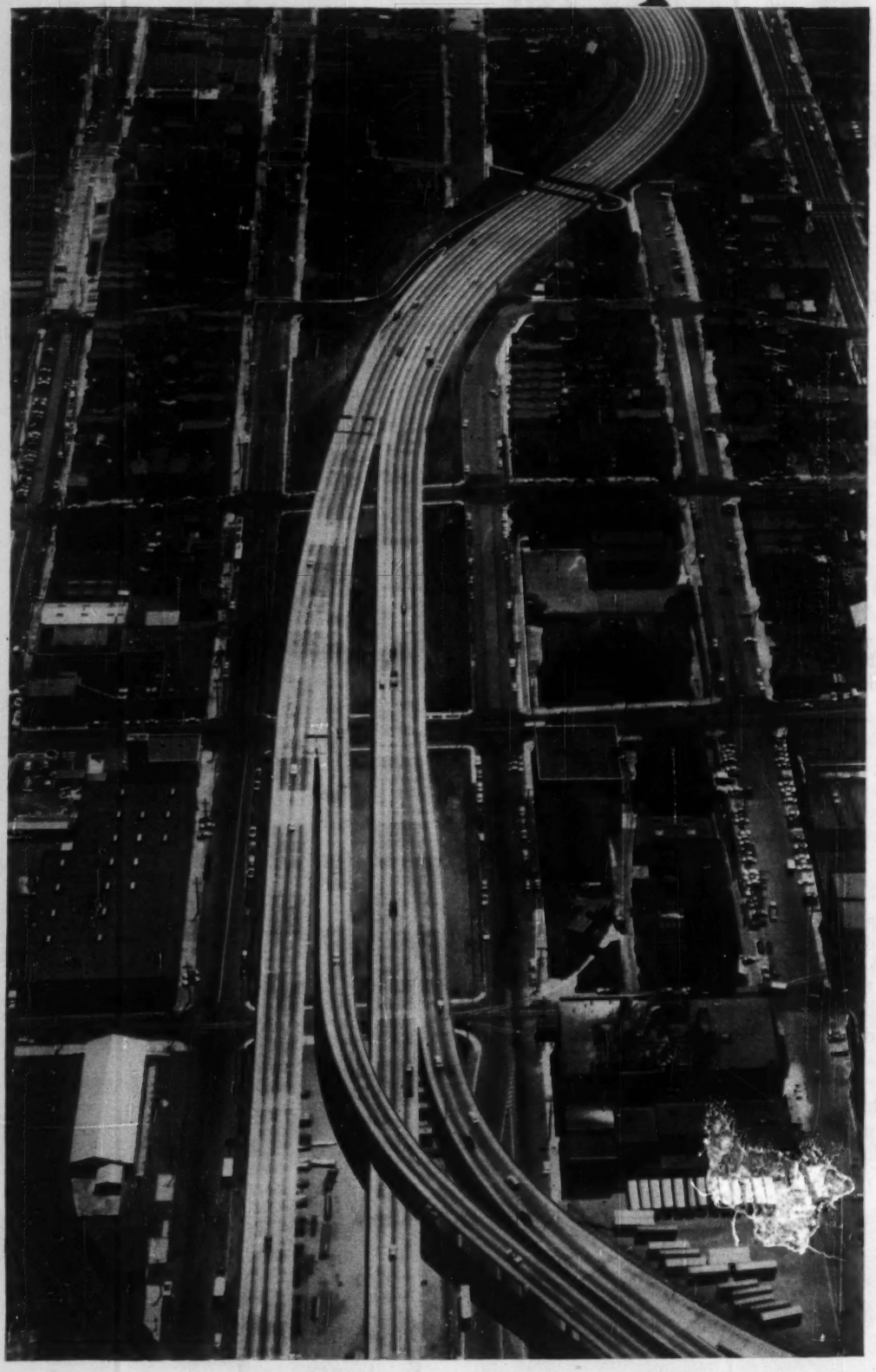

ENR asked

HOW THE MONEY CAN BE RAISED

WHERE AND WHEN TO SPEND IT

D. C. Greer,
State Highway Engineer of Texas
Austin

T. S. Peterson,
President
Standard Oil Company
of California

an ENR Special Report

Finance Our Needed Highways?

these economists, engineers and executives . . .

R. H. Baldock
State Highway Engineer of Oregon
Salem, Ore.

Samuel P. Brown,
Partner
Coverdale & Colpitts,
New York

George W. Burpee,
Partner
Coverdale & Colpitts,
New York

Charles E. DeLeuw,
DeLeuw, Cather &
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C. E. Fritts,
Vice President
Automotive Safety
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B. D. Tallamy,
Chairman
New York State
Thruway Authority

Fred R. White, Chief
Engineer (Retired)
Iowa State Highway
Commission

Richard M. Zettel,
Economist
Inst. Transportation &
Traffic Engineering

When Congress convenes next week it must face up to a vital piece of unfinished business—enactment of a highway bill that will chart a course of road development adequate for the needs of our great and growing nation.

A definite decision is of the greatest urgency. Failure to pass a road bill at the last session introduced an uncertainty that has seriously set back all highway planning. In addition, road construction costs have advanced at least 5% since the estimates the President used were compiled, and there is no slackening of the upward trend. Every day of delay is costing the nation money.

The type, the mileage and the general location of the roads that would constitute an adequate system were prettty well spelled out by the President last year for a program that was very widely regarded as necessary and acceptable—a view, in fact, that Congress shared when it received the President's recommendations.

But sharing agreement on the need for and size of a new highway program was not enough to produce agreement on ways and means of raising the money to pay for it. All legislative proposals foundered on financing methods, and Congress recessed without enacting a new highway act.

Now a new session is about to begin, and the financing question still remains as the principal obstacle to speedy agreement on highway legislation. At the same time optimism on reaching an agreement is possible since the intervening months have permitted many students of highway development to focus new attention on the problem of paying for the roads we need. They have had the opportunity to appraise more carefully the President's unique proposal to finance the interstate system with bonds of a special federal agency. They have reflected on the place of toll highways in an enlarged program. They have weighed the federal fuel

How the Experts Agree on Road Financing Proposals*. . .

6 favor federal government paying 75 to 90% of cost of interstate system

4 favor using all present federal user tax receipts on roads

9 favor raising present federal user taxes

11 favor some kind of federal bonds if necessary

4 favor broadening the present user tax base

3 favor any financing method that would not unbalance the budget

4 favor using revenue bonds for as much of the interstate system as possible

3 favor subsidizing marginal toll roads

3 favor giving states credit for any independently financed interstate sections

2 favor giving special attention to urban highways

**Note that this analysis is necessarily rough because each expert's suggestions encompass combinations of ideas and various qualifications. Each statement must be read in full to get its true essence.*

and excise taxes as to their sufficiency and/or justification. They have argued bonds vs. pay-as-you-go financing, and have given thought to plans combining the two. And they have pondered more deeply than ever the pros and cons of user taxes for highways, and their proper spread over the products and the people who benefit from roads.

In order to bring the fruits of this new thinking to as wide an audience as possible, the editors of Engineering News-Record asked a number of these top authorities to set down their carefully considered views on the general subject of raising money for roads. Sixteen such statements are presented in this report.

There cannot be said to be any unanimity of opinion on financing methods, but likewise no claims are made that any of the proposals are exclusively right and therefore not subject to compromise or combination. They vary all the way from merely continuing the present federal-aid program, but with progressive step-ups financed from existing federal highway-use taxes, to suggestions for federal backing of toll road bonds.

Particularly, these highway students stress the importance of a quick decision on the type of federal participation that is to rule in the future, so that planning can come out from under the cloud of uncertainty that has hung over it for the past year.

Here is the best, most representative and most authoritative thinking that can be assembled on the all-important subject of highway financing. It is presented in the hope that it will create an enlarged body of informed opinion, and at the same time furnish Congress some guideposts in its deliberations on one of the most far-reaching economic and social questions that is likely to come before it.

●

R. H. Baldock

Adopt three 5-year plans based on reasonable increases in present federal road user taxes, and pledge proceeds both to service bonds for interstate system and to increase grants for other federal-aid roads

Generally, when legislation is so badly needed and so universally supported—as was the case with that relating to an adequate road program—a compromise is effected. Not so in the last session of Congress, however, for, without any attempt to compromise, both the Democratic and the Republican bills were defeated in the House.

This fall the Western Association of State Highway Officials passed a resolution calling for a compromise road bill based on a 15-year plan in accord with the amounts shown in Table I below.

For the interstate system, federal funds would be allotted to the states in proportion to the estimated costs of building the system in the several

Table I Federal and State Funds Required

	Interstate System	Noninterstate System	Forest System	All Systems
	(Amounts are in millions of dollars)			
Federal funds	$24,000	$13,500	$495	$37,995
State funds	2,300	12,375	....	14,675
Totals	$26,300	$25,875	$495	$52,670

Table II Allocation of Federal Funds by Periods

	1st 5 years	2nd 5 years	3rd 5 years	Total 15 years
	(Amounts are in millions of dollars)			
Interstate system	$5,750	$8,850	$9,400	$24,000
Noninterstate system	4,500	4,500	4,500	13,500
Forest highways	165	165	165	495
Totals	$10,415	$13,515	$14,065	$37,995

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states, the state to match 10 per cent of the cost. For the noninterstate system, the federal funds, increased over the 1954 schedule by approximately 30 per cent, would be allotted as at present and on the historical 50-50 matching basis.

It is further suggested that the 15-year plan be broken into three 5-year authorization periods in which the expenditures on the interstate system are gradually increased, the expenditures on the noninterstate system to be uniform. This permits a gradual increase in the engineering and contracting forces necessary to perform the work.

Table II (bottom, page 32) indicates the federal funds required in each of the 5-year authorization periods:

Two plans of financing are proposed. Plan "A" proposes the authorization of one-half rather than one-third of present road-user taxes for roads, which is presently about $2,600 million; a moderate increase in road-user taxes—one cent per gallon on gasoline and two cents per gallon on diesel fuel—all of which is to be used for roads; and the borrowing of a reasonable amount of money—$5,225 million, on which the interest to be paid would be $1,166 million.

Plan "B" is based upon the same conditions as given in Plan "A" except that the taxes (all to be used for road construction) are increased to eliminate the necessity of borrowing money. The increases in taxes over and above tax increases as proposed in Plan "A" in order to accomplish this objective would be:

1. A three-cent-per-pound increase in tire tax.
2. A three-cent-per-pound increase in tube tax.
3. A four-cent-per-gallon increase in lubricating-oil tax.
4. A two-percent increase in present eight-percent tax on new trucks, busses, and trailers.

Each plan is based upon an increase of the present authorization for federal-aid roads. Road-user taxes have steadily increased while, from 1944 until 1954, the road authorization remained at $500 million. It is suggested that at least half of the present federal road-user taxes be made available for roads each year, while all additional federal road-user taxes be used solely for road purposes. Some people advocate the use of all presently levied federal road-user taxes for road construction purposes. This plan proposes to use half for road construction.

Some objection may be made to the modest amounts for the interstate system for the first 5-year authorizations. The amounts for the interstate system can be increased to a uniform $1,600 million per year for each of the 15 years by increasing the bonds from $5,225 million to $5,800 million and the amount of the interest from $1,166 million to $1,990 million to conform to Plan "A". However, it would be necessary to increase the federal tax on gasoline from two cents to four cents per gallon for the first five years to do the same job on a pay-as-you-go basis as shown in Plan "B", a rather stiff tax increase. Moreover, the increase in expenditures for the first five years would make it quite difficult for many of the states to match federal funds.

While either Plan "A" or Plan "B" will accomplish the objective of building the important interstate system in a reasonable period of time and of increasing the funds available for the building of the noninterstate federal-aid system, it is recommended that Plan "A" be selected. Plan "A", as recommended by the Western Association of State Highway Officials, would require lower taxes and result in future users paying part of the bill. It is a more balanced plan.

●

George W. Burpee
and
Samuel P. Brown

Full consideration should be given to financing as much of the interstate system as possible with toll revenue bonds to get greatest mileage at least cost to federal and state governments

The funds necessary to complete the interstate system could be obtained in the following ways:

(1) By the issue of general obligation bonds of the United States government.

(2) By the issue of bonds of a federal agency or corporation secured solely by revenues derived from motor fuel taxes imposed by the federal government.

(3) By adopting for such portions of the system as seems practicable the principle of imposing tolls and issuing bonds in such amounts as the toll revenues will support, supplying the amount by which the proceeds of such bonds are insufficient to meet the cash requirements by the issue of bonds as described in (1) or (2).

(4) By meeting each year the requirements for that year without borrowing, a "pay-as-you-go" plan.

The raising of funds by method 1, above, would result in the lowest interest rate, but would increase the national debt. The interest rate on bonds issued under method 2 would be somewhat higher, but these bonds would not be general obligations of the United States and technically would not increase the national debt. This is the method suggested by the Clay Committee. It is a method similar to that used by Michigan to finance the Ford Expressway in Detroit, and appears to be practicable.

No matter by what method capital is raised for highway improvements, the equivalent of an interest charge must be considered. If the capital is not used for highways it can be used for reducing the government debt and consequently the interest thereon. The significant difference in the "pay-as-you-go" plan is that it limits the period for which the commitment is made. At the same time it may result in substantial delay in completion of the project.

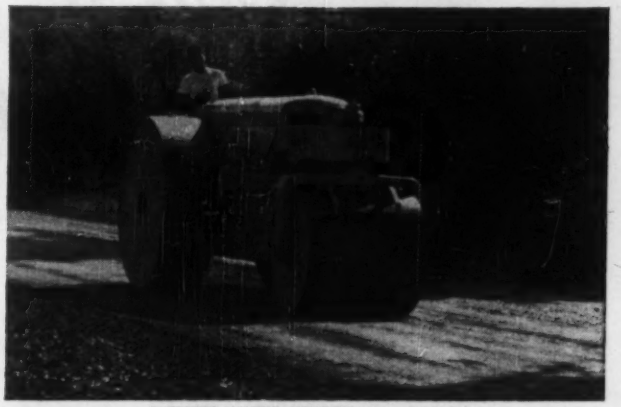
What about revenue bonds? Too little attention has been paid to the possibility of toll revenue bond financing on such selected portions of the interstate system as promise to be self-supporting immediately or within a relatively few years. There is no doubt that such a method of financing would produce the most mileage at the lowest cost to the taxpayer.

Of the 40,000 miles in the interstate system, 2,400 miles (as of Oct. 1, 1955), or 6 per cent, consisted of self-supporting toll roads, either completed or under construction. In addition, there have been authorized for study approximately 2,900 miles, some part of which could undoubtedly be self-supporting at the present time or within a few years by virtue of normal traffic increases. Further, there are proposed an additional 3,300 miles, some of which could undoubtedly be self-supporting before the end of the 10-year period. In addition to these categories there are 1,200 miles of toll roads which have been studied and found not presently feasible, but some part of which may

(*Continued on page* 39)

Plant Mixing of Bitumuls Retread Aggregate Speeds Indiana State Road Reconditioning

A MODERN TRAVEL-PLANT CONTINUOUS MIXER lays down a perfect carpet of Bitumuls Retread mix.



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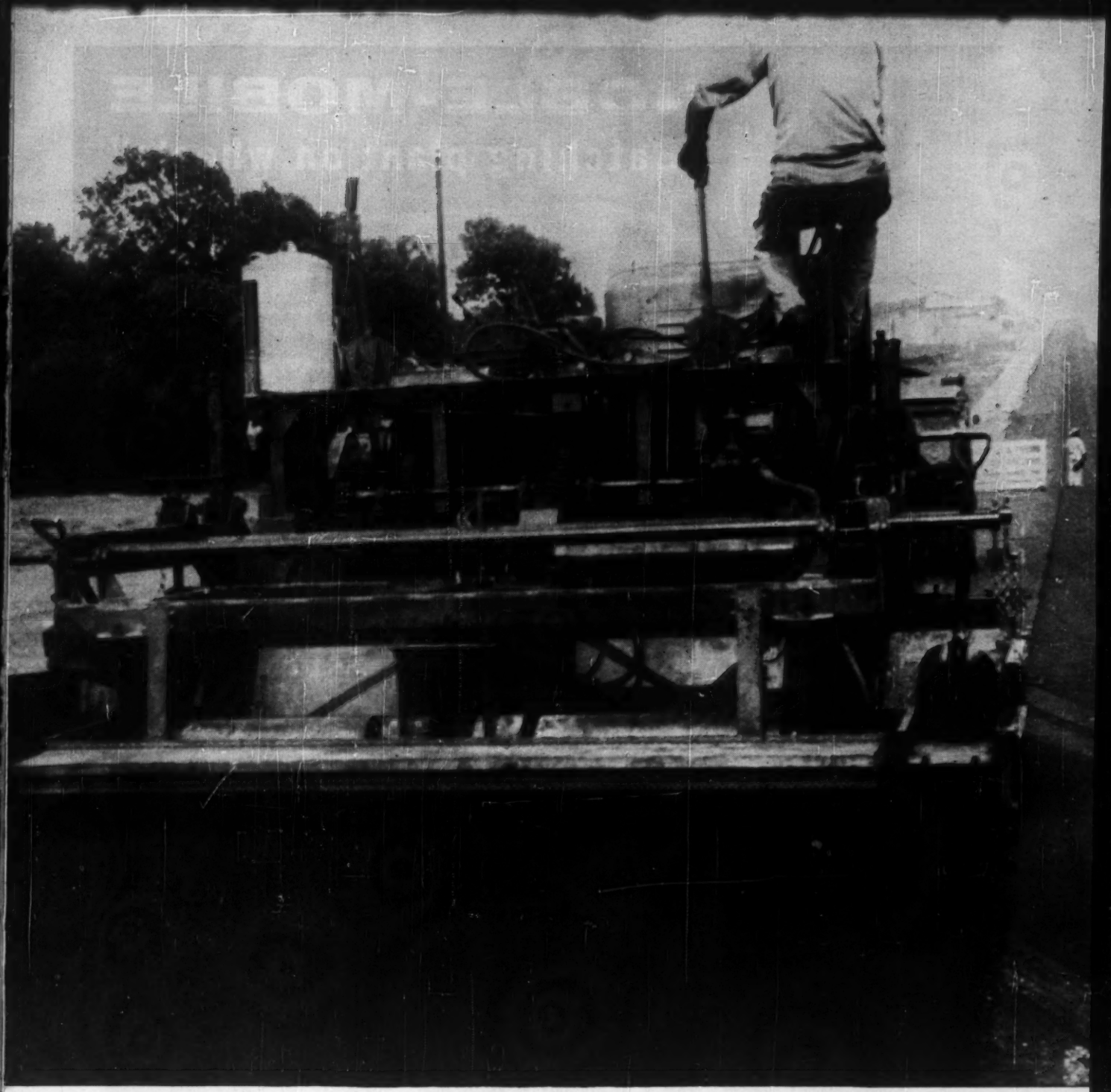

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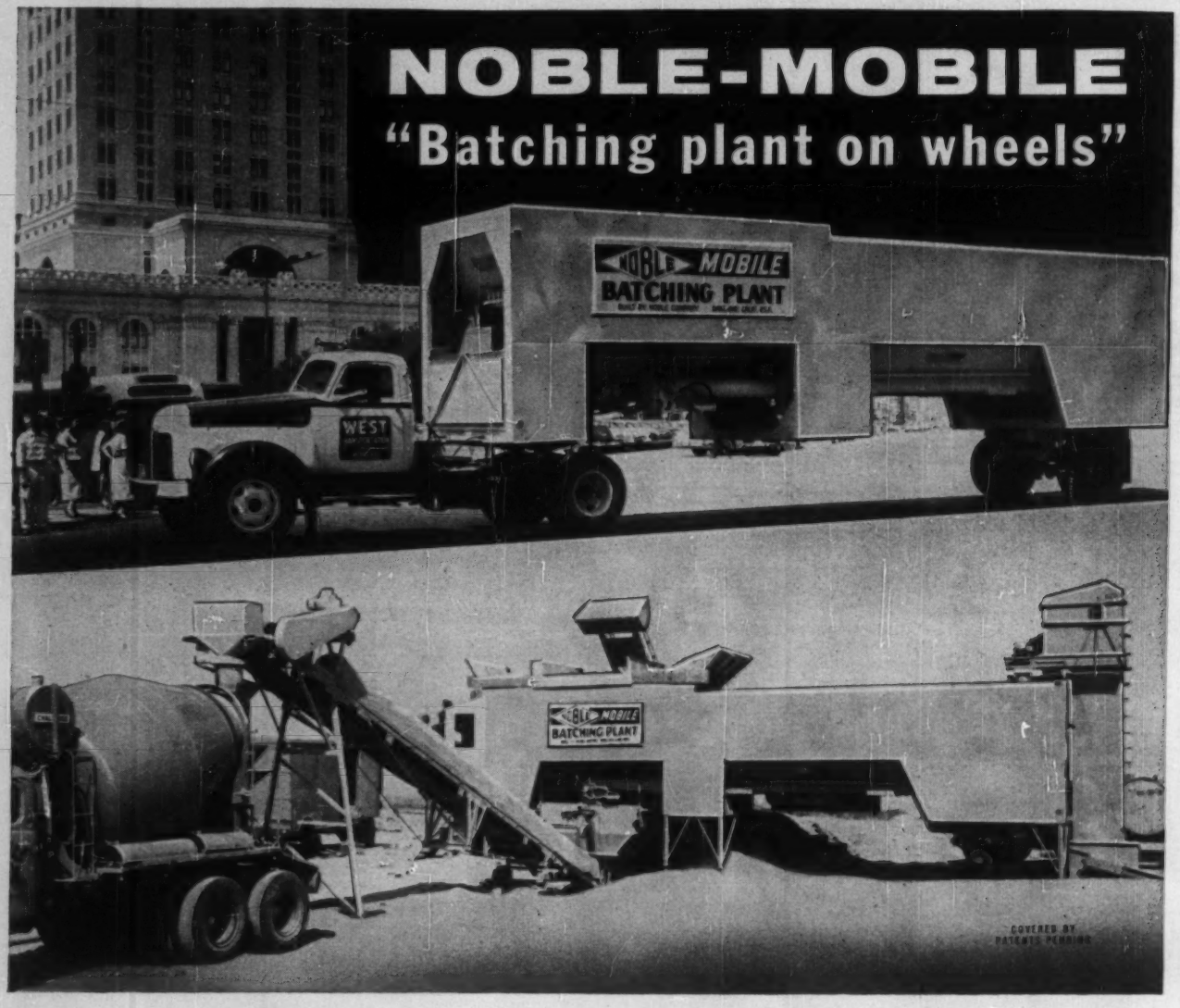

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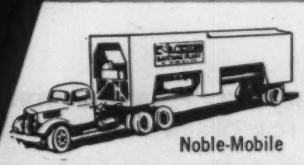
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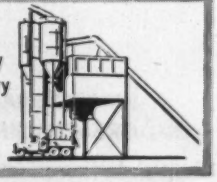
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be rendered feasible with growth of traffic. This makes a total mileage of toll projects, to which more or less study has been given, of almost 10,000 miles, or 25 per cent of the total interstate system.

A toll highway project to be financially feasible at the present time requires estimated earnings generally more than one and one-third times the indicated debt service for the first year of operation, and projected earnings sufficient to retire the debt within a 25-year period. While the bonds issued for the purpose of financing such projects are usually 30, 35 or 40-year bonds, the earnings projection usually indicates the retirement as stated above.

Many marginal toll highway projects, however, may be rendered salable by an undertaking on the part of the state concerned to make good the deficiencies, thereby ensuring to the bondholder the integrity of his investment. By this means many miles of toll highways can be financed by a relatively small contribution on the part of the state, which otherwise would have to be deferred for several years or financed by other means at greater cost to the taxpayer. The Denver-Boulder Turnpike in Colorado is an example of this means of providing funds for highway improvement.

As to the use of pay-as-you-go-plan, California is a good example of a state which is financing the principal part of its limited-access highway program on this basis out of motor vehicle users' taxes, and this system is proving practicable in that state. One of the obstacles to federal financing through motor vehicle users' tax, however, is the lack of uniformity of such taxes now being collected by the various states, and the different policies pursued by the states in using such taxes to meet general expenses and capital requirements.

Moreover, for the federal government to provide on a "pay-as-you-go" basis each year enough of the 25 billions dollars, estimated by the Clay Committee as the federal contribution to complete and improve the interstate system to expressway standards within 10 years, would require a substantial increase in motor users' taxes over and above the present federal gas tax of two cents per gallon. The states, which are already levying high taxes (some as high as 6½ cents per gallon), would resent as discriminatory an increased additional federal tax if it were to fall on the just and unjust alike.

There is also the question of interstate system work that states might undertake on their own. If the interstate system is to be provided by a combination of federal and state funds, appropriate credits should be given to those states which have chosen to provide their portions of the interstate system by means of bond issues or special taxes levied for highway purposes or by means of state agency bonds financed from the collection of tolls. Unless such appropriate and equitable credits are provided the federal government will be assuming a greater burden than necessary to provide the interstate system. The policy to be adopted as to credits should be such as to encourage the maximum development of toll roads where they show indication of being self-liquidating, and encourage such states as wish to provide from their own resources substantial parts of the interstate system.

●

Charles E. DeLeuw

Apply present federal user tax income to a program geared to increasing the nation's total road expenditures by one-half billion dollars annually for 10 years, and include federal aid for toll roads

My first suggestion is to modify the highway program proposed in the Clay Committee Report, calling for an increase in total expenditures for highway construction from less than $5 billion to $10 billion in the initial year, so as to conform to a more realistic conception of the rate at which construction can be accelerated. With cement and steel mills working at capacity and shortages of these basic materials in many areas, there are grave doubts as to whether necessary materials could be made available for doubling the present highway construction program overnight. More important still are the problems of providing right-of-way—an especially troublesome matter in urban areas—and the engineering staffs needed to double the output of surveys and plans.

The present inadequacy of highway department engineering staffs in many states will certainly not be cured immediately, nor is it likely that the consulting engineering firms who prepare plans for a number of highway departments and for all of the turnpike projects would be able to do more than to increase their production gradually.

Specifically my idea would be to increase nationwide highway expenditures during the initial year to $5.5 billion, and in increments of $500 million per annum thereafter to a figure of $10 billion in the tenth year. Such a program would total $77.5 billion, leaving a balance of $23.5 billion to be spent in the succeeding two or three years to carry out the entire program proposed by the Clay Committee.

It appears that such a program could be carried on for a number of years without any increase in taxes. Total revenues of the federal government from taxes on motor fuel, oil, and motor vehicles and parts, for the thirteen year period, 1956-1968 inclusive, have been estimated by the Bureau of Public Roads at $40.214 billion. The surplus of such total revenues over federal highway expenditures at the present rate—$9.1 billion in the thirteen years—would amount to more than $31 billion. Allocation of these surplus revenues to the national highway program proposed in the Clay Committee report ($25 billion federal outlay) would obviate the need for increased federal motor fuel taxes on the modified plan proposed above.

Increases in taxes or creation of a federal corporation calculated to provide a drain on federal funds are always unpopular in a presidential election year. The temper of the voters as evidenced by the defeat of tax increases and bond issues in New York and other states early in November will militate against the acceptance by Congress of any proposal which requires increase in taxes of any character. It would seem that this should logically lead to the acceptance of a modified program as outlined above.

There was considerable discussion during the Congressional hearings as to the manner in which existing and projected toll roads would fit into the overall program. These modern expressways, built to interstate standards, have been constructed, are under construction, or have been financed, in fifteen states all the way from Maine and New Hampshire to Oklahoma and Texas.

In view of the proven practicability

of this type of financing, it seems logical that the federal government should encourage the states to develop these toll roads as integral sections of the interstate system. But while additional toll turnpikes will be financed and built during the next ten years, the projects which can be financed under the rigid requirements of private investors will be limited, and the mileage thus financed may not total more than 10 to 15 per cent of the total interstate system.

My second suggestion, therefore, is that serious consideration should be given to federal aid in the form of grants covering some 40 per cent of the construtcion costs. Such federal aid, in my opinion, would ensure toll road financing of the major portion of the interstate system in virtually all of the states east of the Rocky Mountains as well as in the far west.

The burden on normal federal and state funds would be substantially reduced through the provision of this type of federal aid.

●

C. E. Fritts

If federal government would quickly pledge to stand 90% of the cost of the interstate system and assess everyone to pay for it, this national system could be complete in 12 years.

If we are to have orderly development of all of our interdependent highway systems the first move must come from the federal government. The federal government must step up to its leadership role and assume its full share of the financial responsibility.

The federal government has a key position in our entire highway program and as long as its attitude is undetermined, states and local jurisdictions will continue being beset by uncertainties. In some cases they will be unwilling and in other cases unable to act. But in either case we will have inaction at a time when an all-out effort is needed.

Recent studies in typical individual states have shown that, if the federal government takes proper responsibility, the states, counties and cities can do their share without undue hardship. These studies show that if the interstate system is financed 90 percent by the federal government, in a reasonable period of time, other systems can also be built expeditiously by relatively minor financial adjustments at the state level. Money now being expended by the states for the national system can be used to step up development of other systems.

Thus the first choice we must make is really that of deciding whether or not we will revise federal highway policy to assure completion of the national system of interstate highways as a priority project. The primary federal interest in this system is fully warranted because of the value to defense, interstate commerce and the general economy.

Congress could fulfill a major responsibility by guaranteeing finances for completion of the interstate system within a specified period. Recognition by the Congress of the philosophy of primary federal interest in this 40,000-mile key network would in no way gainsay the importance of the primary, secondary and urban systems nor the need for continued federal aid in building them. The interstate system should be held within its present limits until virtually completed.

An adequate highway plan for the nation as a whole can only come with the acceptance of this new concept of federal financial responsibility. And such assumption of financial responsibility is economically feasible.

If we assessed each vehicle owner in the nation the equivalent amount of two mills per vehicle mile during the next 12 years the project could be finished and paid for within that time. There is ample justification for that approach inasmuch as everyone in the nation would be benefited by completion of the interstate system.

So that then becomes the second major choice we face. What kind of a national fiscal policy do we adopt with respect to our highways? Do we look on highways as of benefit only to direct users and therefore the sole financial responsibility of such users? Or do we look on our key national trunklines as being in the category of things such as the national defense and the general economic welfare?

In the final analysis, roads must be paid for, and they can be financed without resort to deficit, even though credit financing would be justifiable.

America's highways will return benefits in excess of cost. Instance after instance can be cited to show that good roads more than pay for themselves, in safety, in efficiency, in increases in property values. So why not meet the issue head-on, provide the additional needed funds by a method that still will keep the books in balance. Since everyone benefits, is it not logical that everyone pay his share?

Individual states could accelerate their own programs by issuance of bonds, if they so chose. But a deciding factor in the case of nearly every state will be some assurance by the Congress that the federal government will fulfill its obligation within a given time period.

●

D. C. Greer

Use all present federal fuel tax revenues for roads—or, to expand even more, utilize tax increases and borrowing.

No stone should be left unturned that would prevent the passage of a federal aid highway act of some type in the early part of the session beginning in January, 1956. A further deadlock on this legislation would be most disastrous to highway development.

What type of federal aid should Congress pass? The general policies and principles that are contained in the current highway act have been evolved over a long period of time by the trial and error method. We must be quite cautious in departing too far afield from these tested principles of federal-state cooperation in the development of the highway system of this country.

The size of the program to be authorized and the source of the revenue for its financing are the sole prerogatives of Congress. One would be presumptuous indeed to tell Congress what it should do on these two important features, but it is possible to consider what we might do if we held the same responsibility and authority as do the members of Congress.

Under present conditions, I feel that Congress has three choices:

1. Re-enact the existing federal aid highway act word for word and dollar for dollar, delaying the expanded

Electric power-steer takes "B" quickly down narrow, crooked haul road from a borrow pit. Tournapull's top speed is 28 mph.

Cramped quarters

no obstacle to Big "B's" on US 30S

Here big "B" is push-loaded by 148 hp crawler-tractor. Unit carried 102 loads in one 10-hour day over varying haul lengths.

Spreads are fast and even. Operator gets instant action with simple electric controls.

Narrow haul roads, sharp turns, rough shoulders, were a problem all along 13½ miles of road-widening east of Lima, Ohio. Working for Shelley & Sands, Boso & Ritchie of Ravenswood, West Virginia, assigned this 168,000 yards of dirt-moving to their two B Tournapulls. "B's" job was to widen and fill the old roadway. Fill was hauled from narrow side borrows along the road.

Make 1340′ round trip in 3.3 min.

Each 28 mph "B", push-loaded by a 148 hp crawler-tractor, averaged 14 to 18 pay yards in 38 to 39 seconds over an 85′ to 100′ load distance. Rigs traveled over rough 540′ haul, made 150′ spread in a little over 16 seconds, and returned 550′. They averaged the 1340′ round trip in 3.3 minutes.

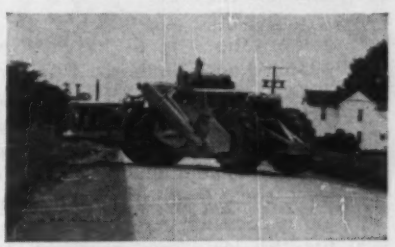
Electric controls paid off in fast loading, fast travel time, accurate spreading. Ten speed transmission enabled operators to regulate travel speed to haul road conditions, and always match loading speed with speed of crawler pusher.

Turn in space 35′ wide

Another handy "B" advantage was ability to turn around in a space only 35′ wide... 5½′ less than its 40′6″ overall length. Positive geared steer on kingpin, and 30° oscillating pivot, also provided faster maneuverability in all the tight spots.

Check "B's" for big output

For big production dirtmovers, investigate B Tournapulls. Check the B Tournapull Bulletin and your own files for direct competitive comparison. See exactly how and why you get greater output at lowest-net-cost-per-yard. Whatever the size of your job, big or small, there's a Tournapull to do your work: the 7-yard, 138 hp "D", the 16-yard, 208 hp "C", or the BIG 23-yard, 293 hp "B" described here. Ask your LeTourneau-Westinghouse Distributor for a demonstration.



On narrow road, "B" turns easily in 35′.. less than its 40′6″ overall length.

Tournapull—Trademark Reg. U.S. Pat. Off. BP-867-H-b

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highway program until the next session of Congress.

2. Use the framework of the existing federal aid highway act and expand its dollar allocations commensurate with the income that the federal government now receives from the federal gasoline tax and the tax on lubricating oils. This would constitute about a 50 per cent increase in the total allocation for highways.

3. Adopt an expanded highway program more nearly meeting the requirements of traffic today, somewhat along the lines of the resolution passed by the Western Association of State Highway Officials, namely, one-half by current taxation increase and one-half by borrowing.

●

G. Donald Kennedy

First need is a long range program encompassing all systems, after which financing should be possible by a combination of user-tax increases and bond issues.

Grand objectives for highway development have been established, based on studies of the nation's highway needs. It is now of the utmost importance that these objectives be reached.

A concerted drive must be made to attain a long-range program which includes early improvement to adequate standards of the national system of interstate highways, continued improvement of other federal-aid primary, secondary and urban systems, and acceleration of this program as may be required.

Legislation to renew federal-aid authorizations is to be expected in 1956. Funds authorized under the 1954 Federal Aid Act provide about $875 million yearly to the states. A modest increase in this appropriation, or even its continuance at the present level, could lead to the belief that the job is done, or that there is less need for the legislation necessary to an integrated overall program. Such is certainly not the case.

The total purpose must prevail. An increase in federal-aid funds, no matter how necessary or desirable, will not in itself provide the full answer to the huge accumulation of highway needs at all levels; nor will it provide for the continuity of funds necessary to an orderly, well-planned program of improvement by the states. If the states are to carry out their engineering plans and supplementary financing, they must have absolute assurance that funds will be forthcoming over the decade necessary to bring their roads up to adequate standards. The President's proposal was for a ten-year program. Other proposals have ranged from five to more than a dozen years. But sound reasons support a ten-year construction period.

An integrated, overall program is needed that will provide for the meeting of highway needs in a definite period of time, and that has a workable, equitable plan of financing. Anything less than this is a piecemeal approach. Once an overall program has been established, financing becomes a means of achieving the goal, rather than an end in itself.

Recently, the President was reported to be leaning toward a combination of pay-as-you-go and bonds. It would seem that an equitable distribution of tax increases on motor fuels and other highway use items, coupled with judicious issuance of bonds, could best insure the early and accelerating collection of funds needed. This is for Congress to decide. Workable financing proposals will be available to the 84th Congress. Considered in the light of the great national needs and objectives, a compromise of viewpoints should be obtainable.

●

John V. Lawrence

Make whatever tax increases are necessary for an expanded highway program applicable across the board

From the moment that the President urged an expanded highway program in his message to the 1954 Governors' Conference, the trucking industry has supported plans for federally-financed construction of the 40,000-mile system of interstate and defense highways.

It has been suggested by some, including the state governors, that the federal government already is collecting enough in special motor vehicle taxes—$2,500,000,000 a year—to do the job, and that these existing taxes should be used. This aproach has been and is acceptable to the trucking industry.

Proponents of using the existing taxes point out that down through the years the special motor vehicle taxes collected by the federal government have exceeded federal highway expenditures by more than $10 billion. They believe the time has come to stop "diverting" these special motor vehicle taxes to general fund purposes and to use them to meet the highway emergency. The merits of this position are obvious, particularly since motor vehicle owners are by no means the sole beneficiaries of a defense road system.

However, up to now at least, Congress has not seen its way clear to use all of the motor vehicle tax revenue for highways. Therefore, the Administration proposed the so-called Clay Bill, which would have built the $24 billion interstate highway system in 10 years through the issuance of bonds which would have been supported in part by a portion of the existing revenue from the federal fuel taxes. This approach was and is acceptable to the trucking industry.

But despite its support by the Administration it proved to be unacceptable to a majority of the Congress, which felt that some additional taxes were necessary. Here again, the trucking industry was and is agreeable to pay its share of across-the-board increases if such increases are deemed necessary.

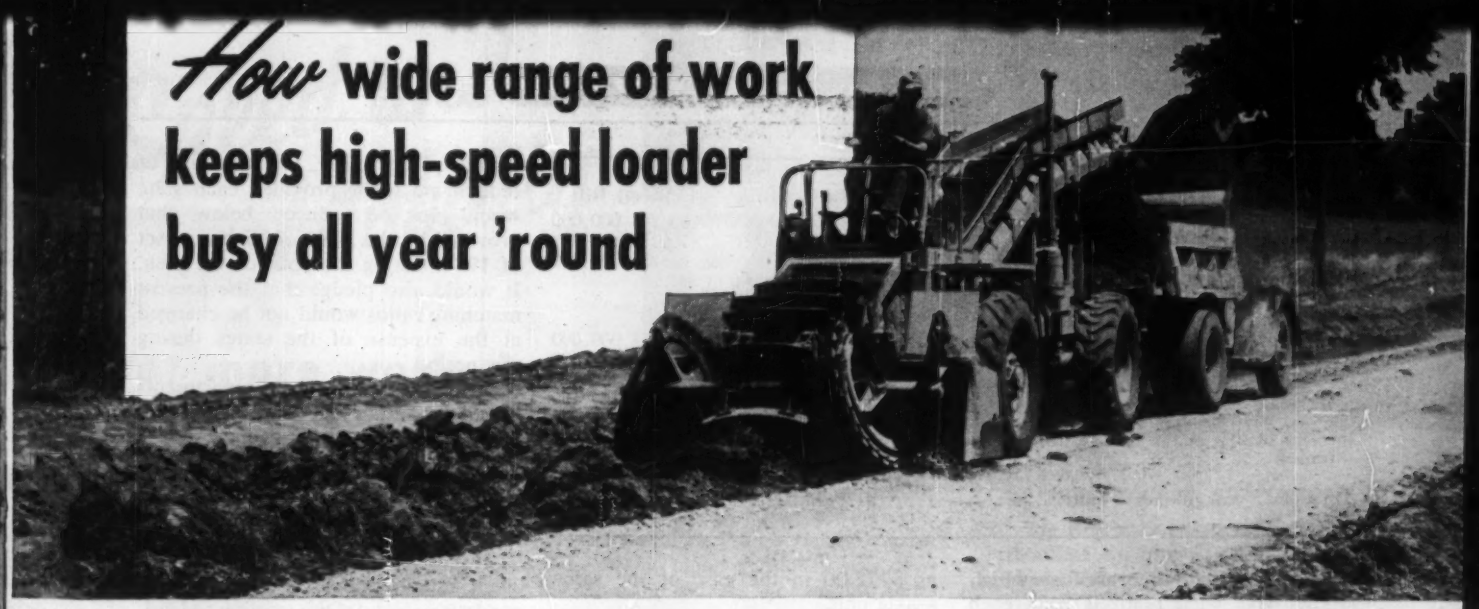
The Fallon Bill, which originated and died in the House, would have assessed increased taxes for a period of 15 years and 10 months, aggregating about $12.5 billion. The trucking industry did not object to the aggregate amount, but it objected vigorously to the manner in which the aggregate amount would have been spread—or more accurately would not have been spread—among motor vehicle owners.

The Fallon Bill did not apply the increases across-the-board. Instead, it established differentials in the tax rates which the trucking industry feels were inequitable and discriminatory.

Congressman Steed of Oklahoma offered a substitute proposal, which would have raised the same amount by applying moderate increases across-the-board, but the House never got an opportunity to vote on the Steed proposal.

Following is a comparison of the increases proposed in the Fallon and

How wide range of work keeps high-speed loader busy all year 'round



On this road-widening job, surplus materials are loaded from windrow into truck in a matter of seconds. No traffic interference.

Here is a heavy-duty, self-propelled, belt-type loader having a wide range of applications for highway departments. It loads practically any type of loose material out of windrows or stockpiles. In addition to high loading capacity, it gets around fast from job-to-job.

Use Adams TraveLoader for picking up surplus material on road and street construction or reconstruction. Use it for loading materials out of borrow pits and stockpiles. TraveLoader works fast in dirt, sod, sand, gravel, crushed stone, slag, cinders, snow. It loads topsoil for landscaping with no prior preparation.

How it works

TraveLoader loads in any one of a wide range of 5 working speeds from 0.29 to 1.9; has 5 travel speeds from 3.90 to 26.7. The floating, revolving, screw-type feeder automatically adapts its speed to the load ahead and places a continuous flow of material on the conveyor-belt. Trucks can be loaded with loose materials at up to 10 yards per minute. Travel speed range makes it easy to keep TraveLoader working to capacity. Trucks load behind loader, do not interfere with passing traffic. Moves job-to-job over highways and city streets at speeds to 26.7 mph.

Heavy, durable construction

All-welded, box-construction, one-piece frame extends full length of machine. Heavy-duty front and rear axles, sturdy feeder mechanism, rigid conveyor with sealed-for-life roller bearings, give TraveLoader the necessary strength to handle heavy loads at fast speeds with minimum downtime and maintenance. *Available with gasoline or diesel engines.*

Easy to operate

You will like TraveLoader's centrally-located control station . . . up out of the dust, permitting clear vision in all directions. Easy, fast, hydraulic controls, give quick adaptability to any working condition.

Get all the facts on the Adams TraveLoader from your LeTourneau-Westinghouse Distributor.

Side-shiftable cross conveyor (optional) loads trucks on either side of machine, assures proper balancing of load. A great time-saver in materials yards. Conveyor position power-controlled from operator's cab.

Cities have many uses for TraveLoader. For instance, ice and snow on city streets can be loaded at the rate of 12 to 20 yards per minute. TraveLoader finds work the year 'round.

Here a contractor cuts and loads gravel out of a natural bank. Many contractors and highway departments use TraveLoader for loading stockpiled materials of all kinds.

AL-5-G-b

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	Fallon Bill	Steed Bill
Increase of 1¢ in gas tax	$9,281,000,000	$9,281,000,000
Increase of 2¢ in diesel tax	512,000,000	.....
Increase of 1¢ in diesel tax	.....	256,000,000
Increase of 10¢ per lb on large truck tires	1,075,000,000	.....
Increase of 6¢ per lb on tubes for large tires	52,000,000	.....
Increase of 3¢ per lb on small truck tires	183,000,000	.....
Increase of 2¢ per lb on all tires	.....	1,538,000,000
Increase of 2¢ per lb on all tubes	.....	69,000,000
New tax of 15¢ per lb on camelback, 6 inch crown and over	395,000,000	.....
New tax of 4¢ per lb on all camelback	.....	284,000,000
Increase of 2% in tax on new trucks, buses and trailers	928,000,000	928,000,000
Total on 15-year, 10-month basis	$12,426,000,000	$12,356,000,000

Steed plans, and the revenues which would have been realized from each (table, above).

Whereas the Fallon Bill singled out trucks for a diesel tax differential and singled out truck tires, tubes and camelback for stiff increases, the Steed proposal would have raised the same aggregate amount by applying across-the-board increases. Steed eliminated the diesel differential, making the 1 cent increase on both gasoline and diesel fuel. He spread the rubber tax increases across all tires, tubes and camelback. The increase of 2 per cent in the tax on new trucks, buses and trailers would bring the rate up to 10 per cent, which already applies to passenger cars and to which the trucking industry has no objection.

In considering across-the-board proposals like Steed's, which was acceptable to the trucking industry, it is important to understand that in advocating the same rate of tax, we are by no means suggesting the same payments in dollars and cents. The large vehicle pays much more than the small vehicle even when the rates of tax are the same.

The Fallon Bill would have increased the tax of the typical passenger car by $5.76 a year (through the 1-cent hike in the gas tax). The Steed proposal would have increased the tax on the typical car to only $6.29 a year (through the 1-cent hike in the gas tax, plus a few pennies in rubber taxes). So it made very little difference as far as the average passenger car was concerned.

The Steed across-the-board proposal would be plenty stiff enough when applied to large vehicles, particularly in view of the high taxes such vehicles already pay. The Steed plan would have applied increases ranging from $134.23 for a 3-axle trailer-truck to $363.99 a year for a 6-axle trailer truck. The Fallon Bill would have applied increases ranging as high as $772.00 in the case of the same 6-axle unit.

It might be noted that the Steed proposal or any other across-the-board proposal would simply be an extension or projection of the taxes already on the books—taxes developed by the appropriate tax committees of Congress. The Fallon Bill was developed in a committee which never before had dealt with tax legislation, and the result was a complete and drastic departure from the traditional federal concept of automotive excise taxes.

It should be emphasized again that the trucking industry has adhered to its fair and progressive position right from the start and has consistently and persistently announced its advocacy of an expended federal highway program and its willingness to go along with any equitable method of financing.

●

Gale Moss

Use bonds backed by both present federal aid and state matching funds, to be sold by the federal government, with proceeds allocated to the states for use on all federal-aid systems

A highway financing plan that could be used as a stop gap until a permament program is adopted is not a desirable answer, but it may be necessary. If so, here are the elements of one that would seem to be practicable:

(1) An act of Congress which would pledge that the amount of federal aid to be provided each state would not be reduced below that provided by the Federal Highway Act of 1954, during the term of the plan. It would also pledge that the present matching ratios would not be changed at the expense of the states during this period.

(2) State highway departments would be authorized to contract with an appropriate federal agency to sell bonds for their benefit. Amortization and interest on these bonds would be provided by pledges of federal aid and state matching funds.

This borrowed money would be spent by the states on new highway construction under the existing federal-aid standards. A single bond issue could be sold to provide funds for all four federal-aid systems (interstate, primary urban, primary rural, secondary). The proceeds of this issue would be allocated to the various systems according to the percentage of federal-aid funds pledged from each category. Both the state highway department and the federal agency would act as joint trustees of the bond funds.

(3) A state could use its own funds, without any federal-aid money, to build parts of the interstate system up to BPR standards. It would receive credit for its actual construction costs by a reduction in the ratio of matching funds until it had been repaid. This, of course, would require additional federal appropriations above the level of the 1954 Highway Act. The extra federal money could be spent on any federal-aid roads.

(4) BPR policy would be changed to allow use of federal-aid funds to build toll roads, where they are feasible. In other words, both federal-aid funds and state matching funds could be pledged as security for toll projects. The net revenues of such toll roads could be used either:

(a) To retire the bonds financing the toll road, the state being credited in the same ratio as the ratio of its pledged matching funds to pledged federal-aid funds.

(b) To provide additional construction on the federal-aid system, but not as matching funds to obtain more federal aid.

Were such a plan to be adopted it would have the following advantages:

(1) It would provide substantial highway funds pending a permanent large-scale federal highway program.

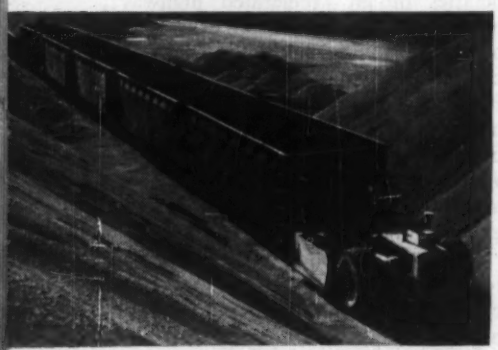
(2) It would provide a good demonstration of which states are ready to take the initiative in a stepped-up highway program because state high-

Speed and Mobility

get more work done!

Tournatractor takes the shortest route to job . . . via highway or cross country . . . cuts hours from job-to-job moves.

208 hp Tournatractor with PCU on rear can be hooked up to pull scrapers, rooters, and rollers.



Rubber tires do not damage rails or ties... unit can switch up to 10 fully-loaded railroad cars at once.

Whenever your application involves scattered job assignments, Tournatractor's 19 mph forward speed and extreme maneuverability cuts moving costs and reduces the non-pay hours of moving time. Big, low-pressure tires let you drive Tournatractor anywhere. For long moves, you save time, bother, and expense of locating a trailer, moving in extra manpower and transport equipment, loading and unloading.

Speed on the job

Tournatractor pulls, dozes, pushes at working speeds 2 to 3 times faster than crawler tractors. You have 3.69 mph in second gear, 8.38 mph in third, compared to crawler speeds of around 2 mph in second, and 3 mph in third. Tournatractor travel speed of 19.23 mph compares to the crawlers' top ranges of 4 to 6 mph. You change gears instantly . . . waste no time shifting.

8 mph reverse speed

High reverse speeds give a very important time-saving advantage to tractor-on-rubber. Nearly 50% of your working cycle on dozing or pushing jobs is usually spent backing up. Tournatractor's reverse speed cuts crawler backing up time by almost 25 to 50%. Crawler highs in reverse range from 3.1 to 6.2 mph. Tournatractor high in reverse is 8 mph.

Instant shifting

Constant-mesh transmission aids high-speed performance by eliminating delays in changing gears . . . saving vital momentum . . . gives you any gear ratio instantly. Tournatractor works in higher gear ratios because there is no loss of momentum for shifting. Torque converter increases this advantage by giving you wide automatic over-lapping of gear ratios, without depending on operator to jockey levers to get the most effective ratio of power and speed to load.

Ample flotation and traction

2' wide tires stay on top of soft ground instead of digging in. Lugs bite into underfooting to give traction. Tire pressures as low as 20 lbs. absorb shock. Rolling action compacts loose materials far more effectively than crawlers.

Lower maintenance

There are 4 easy-rolling-wheel-assemblies as compared to more than 500 wearing parts in standard track-assemblies. This means less maintenance. Dollar-wise this reduction in maintenance time can mean a saving of $3 per hour in operating expenses.

Easier to operate

Fingertip electric controls work at the flick of a switch. Steering, raising and lowering the blade, and operating the power-control-unit are all handled by buttons on dashboard. There are no levers, wheels, or other manual controls to handle. Big, low-pressure tires greatly reduce jars and jolts, stress and strain, on both operator and machine.

Interchangeable equipment

Adding to Tournatractor's versatility are a number of interchangeable attachments . . . Bulldozer, Angledozer, Root Rake, Snow Plow. This versatile tractor can also be equipped with a Push-Block, Logging-Winch or Tree-Pusher for additional applications. Drawbar and PCU are available for hauled equipment. Electric-control, open-top scrapers are also available for use with Tournatractors.

Find out for yourself how Tournatractor's go-anywhere mobility and 19 mph speeds can help you get more work done. Compare this rubber-tired tractor alongside your present crawlers. Write or call for a demonstration.

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way departments using the plan would have to increase their engineering capacity, step up surveys and design plans, and boost their land acquisition programs.

(3) It would force highway contractors to step up their capacity.

(4) And it would encourage the states to embark on toll road and bridge programs, thus releasing funds for use on federal-aid roads not carrying enough traffic to support a self-liquidating toll setup.

●

Enoch R. Needles

Increase federal gas tax and extend federal credit to road revenue bonds as it is now extended to housing bonds

I strongly believe that an increase of two cents in the federal gas tax would be acceptable by the motoring public, as a charge for better roads. Certainly, the additional revenue thus produced would go a long way toward making possible the allocation of sufficient federal funds for our highway needs.

I also believe that any federal aid which is extended to the states can properly be matched by the states in any manner which best suits the situation within the individual state. If, for example, each state should receive federal aid based on 60% of the cost of its highway program, the remaining 40% could be raised in some states out of current receipts, in other states out of an additional gas tax, in other states by means of a general bond issue, and in still other states by the issuance of revenue bonds which would be paid off by the collection of modest tolls.

I can readily understand the objection to the issuance of general obligation bonds by the government in order to finance a highway program in view of the general desire to decrease the federal debt. However, I see no reason why the federal credit cannot be used to support an issue of revenue bonds on the basis that this credit would be used in name only, and could only be called upon to make up any deficit in the earnings which would be required to support the bonds.

Under such a scheme, we would be extending federal credit to revenue bonds for highways in the same way that federal credit has been extended to local housing authorities. The utilization of this federal credit would assure minimum financing costs, a minimum interest rate on the bonds, and a minimum toll, since the bonds to be issued need not represent more than the states' portion of the cost of the projects to be financed.

This kind of a program would be especially adaptable to the interstate highway system, and could bring that system up to desirable standards at an extremely modest cost to the federal government.

There are many details pertaining to the suggestions which I have offered which would require close study by groups prepared to do a little compromising in respect to the different possible programs. Nevertheless, I am convinced that the two cents additional federal gas tax is wholly proper, and would be acceptable to the public along with other modest increases in excise taxes pertaining to the motor vehicle field. This increased gas tax combined with the use of federal credit for revenue bonds could do as much for our highway system as federal credit has for our tremendous national housing program.

●

Wilfred Owen

Make certain that federal action contributes most effectively to the nation's number one transportation problem, that of urban congestion

In the next ten years we will spend half a trillion dollars for our vehicles and their operation. If present financial policies are continued we will probably spend $75 billion for highways in the same period. Thus about 13 cents out of every dollar for motor vehicle transportation will go for highways.

The proposal for a ten-year $27 billion outlay on the Interstate System would mean increasing highway expenditures to about $100 billion for the decade. This would mean that somewhat over 16 cents out of every motor transportation dollar would be spent for roads and streets.

In making this higher payment for highways, however, we would not necessarily be paying more for transportation. The higher investment in roads would mean substantial savings in vehicle operating costs, and there would be further dividends in reduced accidents and time savings. We would be paying more out of every transportation dollar for the highway system but we might be paying less for transportation as a whole.

The fact that automotive transportation is bogged down in congestion affords an excellent opportunity for motor vehicle users to reap the savings that better highways would certainly provide. That the savings are real is demonstrated by the unexpected volume of traffic that has been willing to pay a substantial premium to benefit from the large mileage of interstate expressways being financed through tolls.

A combination of federal gas tax revenues and other motor vehicle fees could readily provide the funds to complete this system, supplemented by tolls wherever the cost per vehicle-mile of providing the facility exceeded the amount collected in other user charges. On some high-cost sections all vehicles might be required to pay a nominal toll, while on other sections only commercial vehicles would be required to pay the surcharge. On some sections no tolls would be needed.

If the imposition of a cash toll is considered objectionable, let us at least be aware that there is no such thing as a "free" road, any more than there are free automobiles and free gasoline. Whether the toll is paid at the gas pump or at the toll gate, the payment will have to be made. No one will be riding free.

There is no reason why the beneficiaries of an accelerated highway program should fail to agree in 1956 on how to divide the bill and how to collect the money—whether in tolls, fuel taxes, fees, or a combination of methods. The real danger is that preoccupation with how to pay may divert attention from other important aspects of the program that still need careful thinking through.

The basic question is how we are to make certain that federal action contributes most effectively to the number one transportation problem in the United States today—the problem of urban congestion.

Urban areas in the United States are spreading at the rate of a million acres a year. By the end of the next two decades growth of population will have added fifty million people to

Rear-Dump's big wide bowl with low-entry makes easy "target" for shovel operator.

Speed 350,000-yd. job

on U. S. Route 460 with 3 Tournapull Rear-Dumps

To widen U. S. Route 460 in Campbell County, Va., from 2 lanes to a 4-lane divided highway, Talbott-Marks Company, Inc., Clarksville, Va., has 350,000 yds. of shale and rock to haul from cuts to fills. Equipment brought in by contractor to handle job included 3 C Tournapull Rear-Dumps and one 1½-yard shovel.

Production figures on a typical 5000′ cycle showed each C Rear-Dump averaged 10 trips per hour. Loads per machine averaged 10 yds. Each rig hauled 100 yards per hour to total 300 yards for the three. Haul route was in fair condition with 7% return grades. Speed and maneuverability of LeTourneau-Westinghouse units kept them well ahead of loading shovel. 90° turn-ability of Rear-Dump lets operator swing hauler quickly into position at shovel for elimination of spotting delays.

Owner A. W. Talbott says units are "Very satisfactory." Two of his Rear-Dumps were driven 354 miles to this job from Hereford, Md., in 18 hours, where they had worked on a 300,000-yd. rock section of the Baltimore-Harrisburg expressway.

If you have a hauling problem, it will pay you to investigate the LeTourneau-Westinghouse Rear-Dump. Write or call us for further production studies and specifications. There's no obligation.

Passing on incline, Rear-Dumps speed along haul route on big, single, low-pressure tires.

There's a size to fit your needs

Model	Capacity	HP	Overall Length
D	11 tons	138	25′2″
C	22 tons	208	30′
B	35 tons	293	37′3″

Model	Width req'd, non-stop 180° turn	
	Travel position	Dump position
D	24′8″	19′2″
C	28′8″	20′8″
B	35′	27′

as applied to your job

Hauls anywhere — Big single low-pressure tires let Rear-Dumps safely travel narrow haul roads, paved highways, city streets . . . haul cross-country over roughest terrain, through muck and soft fills.

Turns in less space — This Rear-Dump makes 180° non-stop U-turn by power steer in less than its own length. It eliminates time normally wasted see-sawing to back into or turn in narrow quarters.

Reduces maintenance — Because these Rear-Dumps have no jack lines, no long drive-shaft, no frame, subframe, springs or tie rods, most common troubles of conventional rear-dump haulers are eliminated.

Dumps fast, clean — Flick of switch activates hoist motor. Body lifts quickly to any desired angle for spreading on run. At full dump position, bowl-lip is behind rear wheels so dump can be made clean over bank. Streamlined body sheds material readily.

Cuts weather delays — Power-transfer differential automatically applies power to drive wheel on firmest footing . . . pulls unit through mud, sand, soft materials which stop ordinary haulers. It's a Tournapull exclusive.

Resists body shock, damage — Three-layer, all-steel, grid-type bowl with tool-steel floor resists loading shocks. Big, wide bowl opening (8′9″ x 10′10″) is easy target for any loading unit.

Improves safety — Multi-disc air brakes have more braking surface on one wheel than most haulers have on all 4. Low center of gravity, good visibility, front-wheel drive, easy control all contribute to maximum safety.

Delivers full power — Torque converter (optional in C size) automatically balances load and torque so you get full horsepower always. Lugging is reduced; shocks in transmission and final drive virtually eliminated.

Reduces fatigue — Big low-pressure tires, 24.00 x 25, and air-foam cushion seat smooth out ride for operator. Electric push-buttons control power steer and 2-way power dump. Eliminated is loss of momentum and all manual work of fighting balky levers.

Insures future earnings — Behind Tournapull prime-mover, you can interchange rear-dump with scraper, bottom-dump, crane, flatbed. These trailing units lower your investment, let you handle any future job efficiently, help you keep your Tournapull profitably busy the year-around.

Tournapull—Trademark Reg. U.S. Pat. Off. R-929-H-b

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BROS *tip sheet* **FLASH!**

FULL TRAFFIC FLOW MAINTAINED ON BUSY TWIN CITY EXPRESS ROUTE DURING SEAL COATING OPERATIONS

On busy express routes the use of Bros Self-Propelled Rollers keeps the traffic moving.

On urban streets the turn around problem is eliminated with Bros Self-Propelled Rollers.

BROS SELF-PROPELLED ROLLERS DO THE TRICK; ALSO END ACCIDENT HAZARD OF ROLLER TURN-AROUNDS

Keeping vital traffic arteries in shape previously created bottle-necks, rerouting problems and accident hazards during maintenance operation. Now Bros Self-Propelled rollers with torque converter and reversing gear solve those problems and bring all the advantages of pneumatic tire rolling to seal coating jobs.

On the busy Belt Line that circles the Minneapolis-St. Paul metropolitan area, heavy traffic continued to roll right along side two Bros 7-ton Self-Propelled units during seal coating of 7.6 miles of pavement.

The job engineers report that traffic and work flow were maintained *only* because the Bros rollers with reversing gears required no turn-arounds.

Rolling was done in 2 passes. Each of two 9′ and one 11′ strips were completely covered by the two rollers in a single pass.

This straight-line rolling keeps work moving right along with the spreader unit, saving time and money. And no tearing up of freshly laid tar and chips at turn-around points occurs.

Smoother starts, fast reversing, easy steering, visibility all around were among other important advantages of the SP-54s on this job. Read more about these features below!

SP-54 — THE FIRST ALL REAR WHEEL DRIVE ROLLER WITH FULL OSCILLATION OF WHEEL PAIRS

Tractive effort is maximized by positive chain drive to all rear wheels. No dead wheel to get the roller "hung up" or cause skidmarks. Only the SP-54 with full oscillation of all wheel pairs provides even wheel loads and uniform compaction densities. One-half inch overlap of wideface front and rear tires provides full 100 percent surface coverage.

TORQUE CONVERTER PROVIDES SMOOTHER STARTS

Torque converter drive provides smooth, even flow of power to the drive line . . . smoother starts when reversing directions, and prevents tearing up freshly laid surfaces. Provides an infinite range of operating speeds in both forward and reverse.

SHUTTLE GEAR AND 3-SPEED TRANSMISSION SAVES TIME

A shuttle gear and 3-speed transmission provides the same speeds in reverse as in forward range. Fast shuttle or reversing gear saves time by eliminating shifting through the transmission when changing direction.

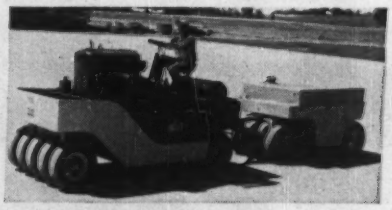
DOUBLE BRAKING

Hydraulic brakes on both rear wheel pairs can be operated separately. When braking one pair, drive power is transferred to the other pair thus preventing the roller from being "hung up" where traction is difficult.

EASY HANDLING BY HYDRAULIC STEERING

Uniform or constant speed hydraulic steering provides smooth, sure control at all engine and roller operating speeds. Turns easy and fast in 18 ft. radius.

WHERE CONDITIONS PERMIT, TOW A ROLLER FOR FASTER RESULTS



On school grounds, parking lots and other areas where turn arounds are possible, you can tow a roller with the SP-54 and get results twice as fast.

The SP-54 is powered by a 50-HP engine. A towing hitch on rear of the body. Get complete information on the SP-54 — the best roller for mat surfacing, seal coating and standard lift compaction jobs. Write: Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave. S.E., Minneapolis 14, Minnesota.

urban America, and twenty-three million more workers will be added to the rush hour. The growth of vehicle registrations and a further shift from public transportation will provide the ingredients of a worsening traffic jam unless highway construction keeps pace.

A concentration of road building effort on the interstate system has the merit of putting approximately $15 billion of the total in the urban areas where the need is so urgent. With $15 billion of construction work involved, the urban program could go a long way not only toward improving transportation but toward helping to fashion better cities.

The difficulty, however, is that in urban areas the problem is not just a highway problem but a total transportation problem. More than that, transportation is closely related to the whole question of slum clearance, urban renewal and land use planning.

In building the costly urban sections of the national highway system the most important economic aspect will be to assure that these roads fit into a comprehensive system of transportation. Such a system must include both passenger and freight facilities, involving expressways, related arterial and feeder routes, transit facilities, parking areas and terminals. These in turn must be designed as part of a comprehensive metropolitan area plan.

A federal program for completing the interstate system provides a unique opportunity to fit the highway into metropolitan transportation planning. It should be stipulated in federal legislation that the state highway departments establish qualified urban planning divisions to assure cooperative and constructive city-state relations. No expressway should be eligible for the national system until its location and design have been certified as part of a total transportation plan. Funds should be set aside to help finance federal-state-local studies designed to further such a plan.

The opportunity to achieve lasting solutions to the problem of urban congestion should not be missed, and financial questions should not be allowed to submerge the physical aspects of the program that are bound to play a decisive role in the future of the urban economy. Getting the road users to agree on how to pay the bill is only half the problem. If the potentials of the interstate system are to be realized, the roadbuilders and the planners will have to agree on how to assure that better roads will lead to better urban living.

●

T. S. Petersen

Broaden tax base to include more people and more products; preferably reserve fuel taxes to the states

America has the finest system of highways in the world, made possible largely from proceeds of gasoline and other user taxes. Nevertheless, our highway system is rapidly becoming obsolete.

The controversy over means of resolving the highway problem through federal aid has caused a virtual stalemate between those who advocate pay-as-you-go methods and those who favor financing through bonds. A most disturbing factor, however, is that both sides are agreed that further increases in gasoline taxes provide the best single answer to financing.

If this approach is adhered to, it is conceivable that we will soon find ourselves faced with diminishing returns. There is bound to be a limit to how long we can go on raising motor fuels taxes without beginning to work an injustice on motorists and the general public. In a typical year, gasoline taxes in this country come to $3 billion. This is a sizeable levy to impose on a single commodity which is supposedly not in the luxury class.

I believe it is time to investigate the possibility of financing our roads of tomorrow by broadening the tax base to include more of the people and products which benefit from good roads. Rather than taxing only those who use the highways directly, we should expand this user tax philosophy to include all persons who benefit, directly or indirectly, from highway traffic. Adequate roads afford access to homes, farms, stores, factories and other places of business. They also benefit suppliers of automotive vehicles and accessories. Use of paving materials is increased. When a new road is built, value of adjoining property rises.

All these sources should share the tax burden, which must increase as we build the roads that we need. As a matter of fact, so universal is our dependency on highways that it would be quite logical—though no doubt beyond the realm of possibility—to pay for them by a general tax on all products.

In any event, a total re-evaluation of our approach to highway financing is certainly in order. It should, moreover, include a reaffirmation of the principle that gasoline tax revenues traditionally belong to the states and should be collected only by the states. It is surely proper for the federal government to pay a share of the highway bill, but this should be done with money from general funds, not with funds which rightfully belong to the states.

To summarize, it is my belief that the federal government should retire from the field of highway user taxation and, secondly, that the states should broaden the user tax base for highway construction purposes. If the federal government is not yet prepared to repeal its motor fuels tax, then it, too, should broaden its tax base in like manner.

In the past, both state and federal governments have pursued a policy of "selective" taxation for highway financing which, by concentrating on the gasoline tax, has weighed heavily on the immediate user of the highway. It would seem only fair to begin, now, applying this selective technique as un-selectively as possible.

●

Ben H. Petty

Cut the proposed bond issue of $25 billion in half and make up the difference by equitable increases in user taxes

The failure of Congress, this year, to pass some type of highway enactment to relieve the serious highway situation was a shock to many who were actively supporting such legislation. However, this may not have been such a calamity as it first appeared to be—providing the next session of Congress does something about it. The intervening months of retrospection, soul searching, and hearing from the folks back home, may result in a more equitable and satisfactory piece of legislation than that represented by any of the various bills presented at the last session.

There were many reasons why none of the proposed highway bills was favorably voted on by both the Senate and the House. Undoubtedly there was some misunderstanding, certainly on the part of the general public

and possibly by some of the Congressmen, about the overall impact of these bills. For instance, the period of time to be covered by the varied billions of dollars specified for highway improvement differed in the bills submitted. The importance of these specified periods of time varies with the total funds to be expended.

The needs now facing us are great, and these needs should be met just as rapidly as money, contractors, materials, rights-of-way, adequate plans, engineers and other personnel are available. But no one knows exactly whether the time period should be 5, 10, 15 or 20 years. The important thing is that we get going now and adjust our program and time limits according to the availability of all of the ingredients that go into a program of this kind—including money.

In this connection, the conflicts of opinion as to the desirability of increasing current revenues by the pay-as-you-go method versus bond issue financing surely can be compromised in such a way as to get the program going. It may be that the proposed bond issue of $25 billion represents too great a venture into this field. This might well be cut in half, with the balance to be made up by reasonable and equitable increases in current highway-user taxes.

It is difficult to understand why some consider a bond issue, of any size, an anathema. A major share of business is conducted on the cuff, industries expand their plants through bond issues, and probably a major share of the motor vehicles using our highways were purchased on a time credit basis.

Probably the life of the proposed highway bonds should be reduced from the original 30-year proposal. We should not pass too much of the costs on to the next generation. However, a big share of the proposed expenditure of funds covers more or less permanent facilities such as rights-of-way. The structures should last from 50 to 75 years, and the pavements themselves should have a life expectancy of 25 to 30 years before major overhauling comes due.

The Bureau of Public Roads estimates a total expenditure of over $7 billion in 1955 for street and highway purposes. Ten years at that rate would produce $70 billion in normal expenditures, of which close to $50 billion would be for construction. This represents a sizeable share of the totals specified in the various bills discussed in Congress.

We must guard against development of a "crash program" which would inevitably result in a waste of funds because of lack of adequate advance planning, designing and supervision. Also it is probably a mistake to publicize the statement that, at the end of this program, highway facilities will then be adequate. Undoubtedly other needs will have developed by the time the program is completed. In fact we probably never will have a highway system adequate to meet all current requirements, since there will be a continuing development of needs which must be met as time goes on.

Too much emphasis has been placed on the improvement of the interstate system of 40,000 miles. The ill effects of this emphasis were evident in Congressional debate where it developed that a number of congressional districts were not traversed by an interstate highway. Of course this should not be a vote-controlling factor, since all of us pay taxes for governmental expenditures at places far removed from our home communities. Nevertheless, the program must be a balanced one with emphasis paralleling the needs of the various systems. Since about half of the total annual vehicle miles of travel occur on city streets, it is obvious that our metropolitan areas deserve adequate attention in this program. Local roads should be given fair recognition too.

The conflict of opinion relative to user revenues, particularly as it involves the bus and trucking industries, surely can be satisfactorily resolved. The studies now being made by the Bureau of Public Roads as to the proportionate share of highway costs that should be carried by various types of motor vehicles should help in this regard. Obviously some types of vehicles cause more wear and tear on highways than others, and their owners should pay accordingly. It is also notable that as far as gasoline tax, registration fees, driver's license, etc. are concerned, the average motorist pays $60 or less a year towards the overall costs of the streets and highways over which he travels. This is equivalent to about half the price of a pack of cigarettes coughed away each day. And he pays up to twice as much for his automobile insurance as he pays for the highways.

This highway improvement program is too big and too vital in its resultant affects on the daily living of every person in this country to be kicked around as a political football. The needs of all the people should come ahead of the possible benefits accruing to any political party through the passage of such legislation bearing its particular trademark. The average motorist just doesn't care which political party gets credit for the passage of an adequate highway improvement bill, so long as it provides better transportation facilities for Democrats and Republicans alike, and helps reduce the alarming annual total of murders and suicides on our streets and highways. This should be the major interest of all public officials and voters, regardless of political affiliation.

●

Julien R. Steelman

Finance federal portion from general funds within a balanced budget, and issue bonds beyond that, states to use either pay-as-you-go or bonds

The basic elements of highway financing are clear-cut and simple. Highways will be paid for by the consuming public (which is all the population of the country) in direct ratio to their individual consumption of goods, and by the individual car owner, which includes most of the adult population, but not the trucking companies or individuals who haul for hire because, in the long run, these groups pass on all their costs to consumers).

Since this is the case it is only necessary to insure that funds for highways are collected on as broad a base as possible.

On the federally financed portion the use of general funds is as fair a basis as could be used. The levying of highway user taxes at the federal level has considerable logic, but in view of the tradition of nonsegregation of U. S. government revenues the argument for such an approach is somewhat weakened.

At the state level, highway users taxes have been very satisfactory, and particularly in those states that prohibit diversion of such funds.

The use of bonds to finance road building is completely logical. It spreads the payment for the roads over the period of their useful life, and extends the payment across the full range of the people using them. Opposition to bond financing has apparently been on broader considerations

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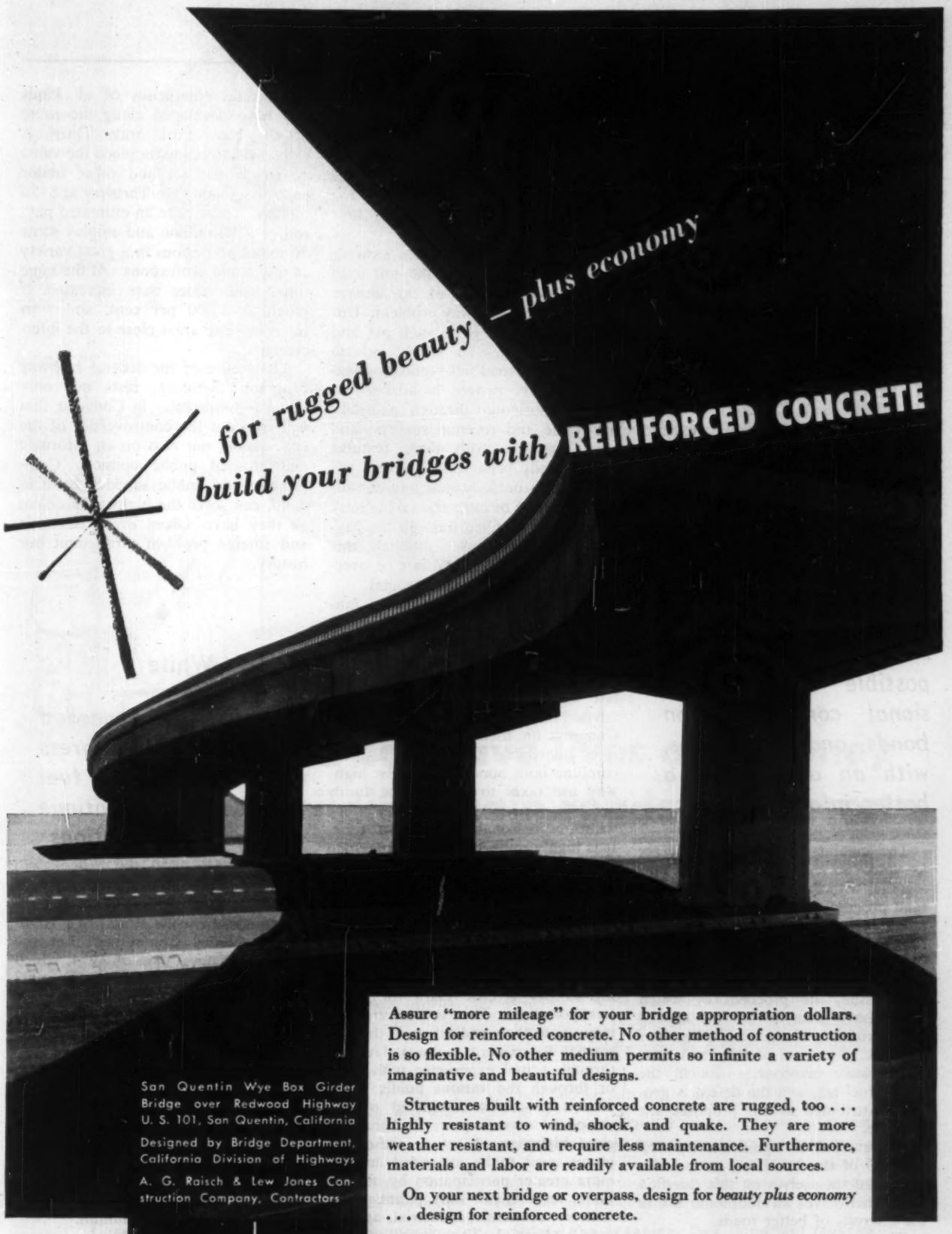

San Quentin Wye Box Girder Bridge over Redwood Highway U. S. 101, San Quentin, California

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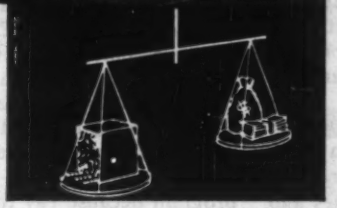

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than the road financing itself. Nevertheless, it seems entirely reasonable that if public facilities have a useful life of three generations they should be paid for by three generations rather than one.

As a matter of practicality it would seem that, once the program is set, the federal portion of highway financing should be done by current revenues to the extent possible under a balanced budget. Any balance that could not be covered by current revenues should be financed by bonds, issued each year of construction, and of a term to approximate the economic life of the roads.

Most states will probably expand their current tax rates and continue on a pay-as-you-go basis, though there is no reason why bonds should not be issued at the state level.

●

B. D. Tallamy

Adequate road program possible by Congressional compromise on bonds and new taxes, with an assist from a better informed public

The inability of the last Congress to agree on a federal highway bill, together with the reverses certain state road programs have undergone in the meantime, poses challenging problems for the future of good roads.

In my own State of New York the voters turned down a $750 million bond issue, the proceeds of which would have gone toward the needed reconstruction of the state's highway network. Approval of the bond issue would have involved a rise in the motor fuel tax, and the defeat is generally attributed to this proposed tax increase.

However, it is significant that 1,103,000 of the 2,561,700 voters who expressed themselves on this question voted themselves an additional tax in the interests of better roads.

The lesson to be learned from the New York experience, I believe, is that the public wants good roads and is willing to pay for them. In return, however, it apparently demands an iron-clad guarantee that the additional revenue will be spent on roads.

Without getting into the controversial diversion question, it appears to me that the number of motorists who are willing to pay for better roads is on the increase. The resounding success of many of the new turnpikes is evidence that they are ready to pay for the superior transportation the new toll roads afford.

For that reason, there is a growing tendency to look upon the toll road as a substantial part of the answer to our national highway problem. Unfortunately, there is no such pat and simple solution. To attract private investors, toll road self-liquidating features must be proved in advance of their construction through painstaking traffic and revenue surveys, and most highways with these features have already been staked out as toll roads. It is unlikely that any considerable portion of our national highway needs could be filled through the pay-as-you-ride principle, although this type of financing should not be overlooked in cases where it is sound.

When Congress reconvenes in January, a road bill undoubtedly will be high on the agenda. What form should it take to avoid the controversies which led to a stalemate during the last session? Without presuming to advise the Administration and the Congress on fiscal matters, it would seem inevitable that the bill must combine both bonding and new highway use taxes to provide the funds necessary to meet the highway needs within a reasonable period of time. It is highly unlikely that the interstate system could be reconstructed within the necessary 10 or 15 year period from present tax revenues without deferring other equally important highway work.

I mentioned above that more and more of our citizens seem to be willing to pay a little extra for better transportation. This is due in large measure to their realization of the vast savings in modern highway facilities through actual experience with them or through the various public information programs conducted over a period of several years in behalf of good highways. I believe these programs need to be expanded and require greater participation by our national leaders, not only political, but military, economic, industrial, agricultural and social. They are all affected since our economy cannot continue to expand without adequate transportation.

There should also be more emphasis on the positive benefits modern highways bring about. To illustrate, I might point to the new industries and commercial enterprises of all kinds that have developed along the route of the New York State Thruway. Conservative estimates place the value of new industries and other major enterprises along the Thruway at $150 million. These have an estimated payroll of $100 million and employ some 30 thousand persons in a great variety of trades and professions. At the same time, land values have increased as much as 1,000 per cent, and even more in some areas close to the interchanges.

The future of the federal highway program, therefore, rests not only upon a compromise in Congress that will iron out the controversies of the last session, but also on an informed and aroused public opinion. Compromise and public support, hand in hand, can solve the highway problem as they have solved every domestic and foreign problem throughout our history.

●

Fred R. White

No new financing needed until 1960 if Congress will draw on federal fuel tax receipts and continue two-year authorizations

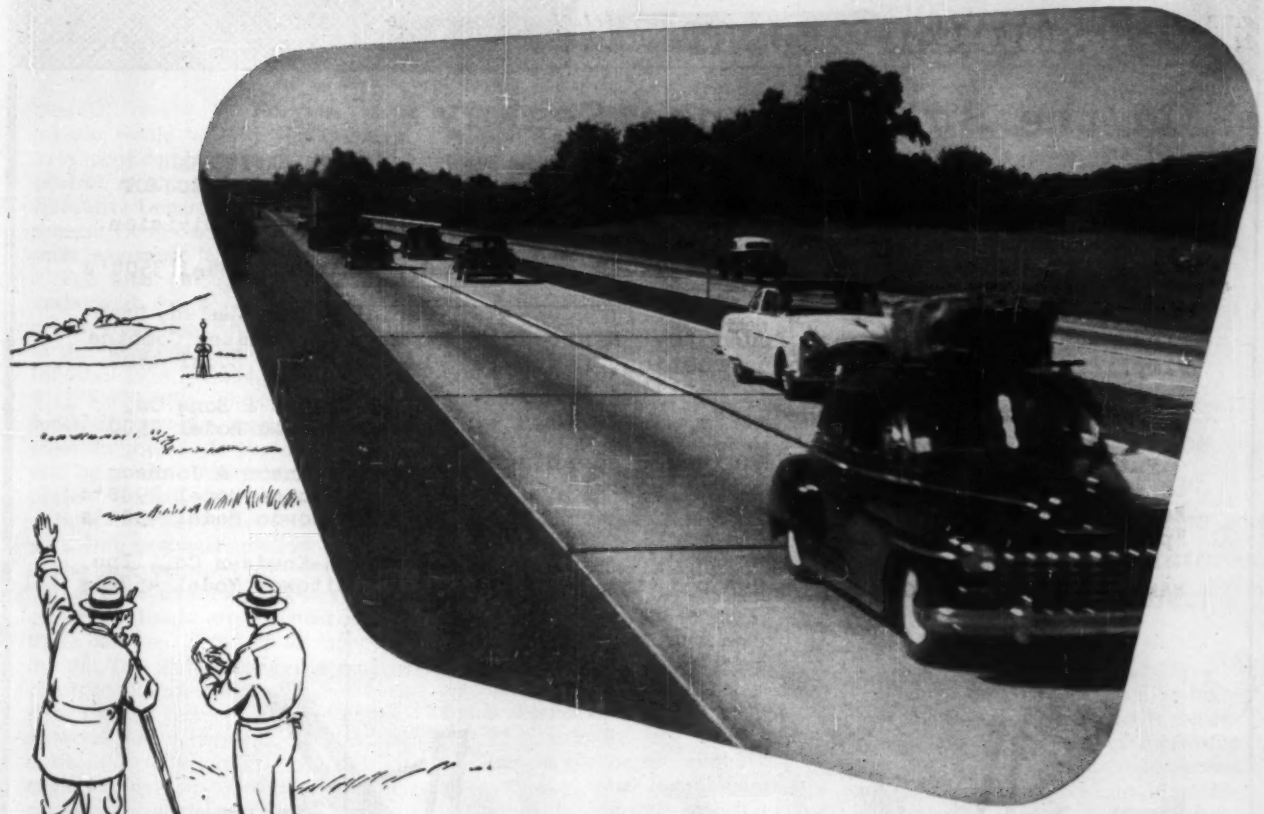
There is no emergency which warrants a "crash" highway program such as proposed by the President's Highway Advisory Committee. Let the Federal Highway Act of 1954, which authorizes funds for the fiscal years 1956 and 1957, stand as is. The 1954 act increases federal aid road funds per year for 1956 and 1957 as follows:

(a) Interstate funds from $25 million to $175 million, or a 600% increase.

(b) Total federal aid road funds from $575 million to $875 million, equals 52.2% increase.

These increases represent about all the additional funds the states can efficiently and economically expend in the 1956 and 1957 biennium.

Proceed as soon as Congress reconvenes in January, 1956 with a new federal aid highway act authorizing funds for the fiscal years 1958 and 1959. It is not believed wise or necessary for Congress to adopt legislation providing for a long-term highway program because (a) the benefits of a



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Everyone has a vital stake in America's main roads. Everything he eats, wears or uses comes wholly or partly over highways. His welfare and the nation's defense depends on an adequate system of main roads.

Most main roads are concrete.

Ninety-two per cent of the most heavily-traveled road sections in the U. S. is concrete. Some of this pavement has been resurfaced but it is the rigid concrete slab that still carries the load.

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Main roads should be built of concrete. It is the safest, most economical pavement.

Concrete's light color reflects up to four times more light than dark pavement. You get maximum visibility at night. *If you can't see you can't be safe!*

Concrete's gritty surface texture is protection against dangerous skidding, even in wet weather.

Concrete is free from hazardous ruts, washboard ripples and raveled edges.

All these safety features of concrete pavement help reduce the tragic toll of highway accidents.

Concrete is moderate in first cost yet can be designed accurately for any axle load—and will *keep* that load-carrying capacity throughout its life.

Concrete has the lowest maintenance cost, according to official state highway department records.

Concrete lasts longer. Today engineers know how to build concrete roads to last 50 to 100 years.

Moderate first cost + low maintenance expense + long life = ***low annual cost.*** Over the pavement's life that saves millions of dollars for taxpayers, who pay for building and maintaining roads with license fees, gas and other motor vehicle taxes.

Safety and economy. Two important reasons why all our main roads should be built of concrete.

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SPECIAL REPORT

On the St. Lawrence Seaway

As of the 15th of October, 1955, 17 Manitowoc Shovels, Draglines and Cranes were taking on the "tough jobs" along the St. Lawrence Seaway Project with many more Manitowocs scheduled to appear soon.

Project contractors have found that Manitowoc simplified design, rugged construction, fast mobility and all-around job versatility pays off in speeded-up work schedules.

Put all of the job-tested Manitowoc advantages to work on your next bid. Contact your Manitowoc distributor for the whole "profit-happy" picture.

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OTHER MANITOWOCS
ON THE SEAWAY PROJECT

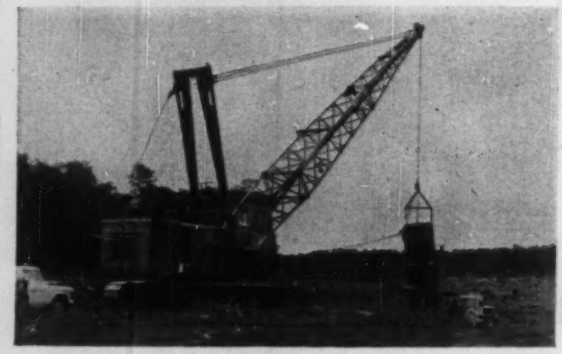
American Bridge Division,
U. S. Steel
6 - Manitowoc Model 3500's

Perini, Kiewit, Walsh, Utah,
Morrison-Knudsen Combine
1 - Manitowoc Model 4500

Peter Kiewit & Sons Co.
1 - Manitowoc Model 4500

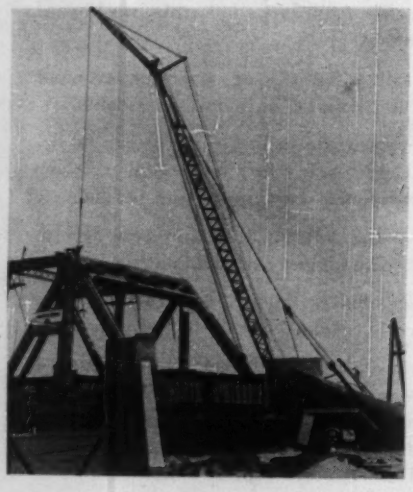
Kiewit-Johnson & Johnson
2 - Manitowoc Model 3900's
2 - Manitowoc Model 4500's

Morrison-Knudsen Co., Inc.
4 - Manitowoc Model 4500's



Equipped with a 6½-yd. bucket, this 4500 dragline operated by Morrison-Knudsen loads 22 cu. yd. wagons in three passes per unit during preliminary work on diversion, cut "F".

This Manitowoc 5½-yd. Model 4500 shovel is excavating at the site of Barnhart Island powerhouse for the combine of Perini, Kiewit, Walsh, Utah, Morrison-Knudsen.



One of six Manitowoc 60-ton 3500 cranes operated by American Bridge — this unit shown placing steel at site of "permanent bridge".

One of the first machines on the St. Lawrence project, this 2½-yd. Manitowoc Model 3500 is shown excavating at the site of Long Sault Dam. The shovel pictured is owned by Dravo Corp.

MANITOWOC
SHOVELS 1-5 YD. Speedcrane CRANES 20-100 TON

biennial review by Congress as at present would be lost; (b) Congress, to a considerable extent, would lose control of the highway work to the Executive Department. Also, any subsequent Congress can repeal or change such long-range legislation.

The total amout of federal funds authorized for federal aid primary, urban, interstate and secondary roads in the proposed new act would be as follows: 1958, $1,234,000,000; 1959, $1,275,000,000. These amounts respectively are the estimated receipts from the present 2¢ per gallon federal tax on motor vehicle fuel and the present federal tax on lubricating oil.

How these authorized amounts compare with previous amounts is shown in the table below.

It is believed these increases in federal road funds are as great as the states can use. This view is supported by the fact that during the current construction season there have been shortages of cement, steel, lumber, plywood and equipment, and because there is a long-standing shortage of engineers qualified to plan, construct and supervise highway work.

Under the legislation and procedure proposed, Congress may in 1958, when it reviews highway progress, decide that the amount to be authorized for 1960 and 1961 should be increased beyond that proposed for 1958 and 1959. In that event, Congress can take such action as appears appropriate under the circumstances.

Funds suggested to be authorized should be divided one-third for the interstate system and two-thirds on all other federal aid systems. The latter should be divided as at present—45% for federal aid primary system; 30% for federal aid secondary system; and 25% for extensions of these systems in urban areas.

Most of the proposals made in the recent session of Congress unduly emphasize the interstate system, one bill proposing to spend 70% of all federal funds on this system which carries only about 14% of the traffic, a money to traffic ratio of five to one. The proposal made here provides a ratio of 2.4 to one, which is believed to be adequate.

The funds earmarked for projects on the interstate system should be allotted among the states in the ratio that the total population in each state bears to the total population of all the states. This is much better than the so-called "need basis" which allots funds in the ratio of the estimated cost of completing the system in each state to the total cost of completing the entire system. This is unsound and fallacious because the estimates in various states for completing their systems are made by many different people and cannot therefore be expected to be exactly comparable.

All other federal aid funds should be allotted among the states in the manner now provided by law.

These federal aid funds should be matched by the states on the present 50-50 basis, while the interstate road funds should be matched 25% state and 75% federal.

There should be no reimbursing as such to any state for building any portion of the interstate road system to interstate standards either as a free road or as a toll road. Such reimbursing can only lead to misunderstandings, disappointment and grief. When any state has brought its entire interstate system up to standard, the Bureau of Public Roads could certify that its interstate road funds could be spent on the federal aid primary system and its urban extensions.

There is no necessity for bonds to finance needed extension of the highway program, which can advance as rapidly as available material, equipment and personnel will allow on a pay-as-you-go basis.

The highway program can be financed from taxes. Bond issue financing is not a sound procedure and is merely a shot in the arm with the inevitable hangover the morning after when the bonds and the interest have to be paid. What our highways need is a continuing steady annual income sufficient in amount to provide adequate maintenance and to provide for the construction and reconstruction of such highways at a rate that will, within a reasonable period of time, catch up with and then keep up with the growing traffic needs.

How Federal Aid Can Be Increased With Present Taxes

Year	Act or Proposed Act of	Amount Authorized or Proposed to be Authorized (Millions)	Percentage Over Amount Authorized by Act of 1952	Increase Over Amount Authorized by Act of 1954
1954.....	1952	$575	.....	.....
1955.....	1952	575	.....	.....
1956.....	1954	875	52.2%	.....
1957.....	1954	875	52.2%	.....
1958.....	1956	1,234	114.6%	41.0%
1959.....	1956	1,275	121.7%	45.7%

●

Richard M. Zettel

Decide quickly if interstate system is to be nationalized and, if so, look to revision of entire federal taxing and state aid theories to reflect this new concept

Though a national interest in highway development is generally recognized, and federal aid in increasing amounts has been granted for about 40 years, one can find no clear expression of a national highway policy. One might infer from actual practices, however, that these have been the guide lines of what might be called traditional policy:

(1) The states own and operate the highways. The federal role is to stimulate and support state programs, and equalize resources through grants-in-aid.

(2) Except for special obligations growing out of federal activities, the national government's role is founded on broad general interest, such as interstate commerce and national defense.

(3) Federal grants for highways are ditsributed by formulas conceived to satisfy needs in the several states reflecting these general interests.

It appears that no small part of our present difficulty stems from the fact that an entirely new pattern of federal participation is being considered, in which, on the interstate system at least, the federal government would virtually take over from the states. Under such circumstances, the states are naturally reluctant to take action where they may be superseded.

Will it be wise, for example, for any state to act on a comprehensive financing plan before it knows whether the national government will finance 90% to 100% of construction costs of highways which are now or may in the future be on the interstate system? Will it be prudent for any toll-road authority to proceed with construction

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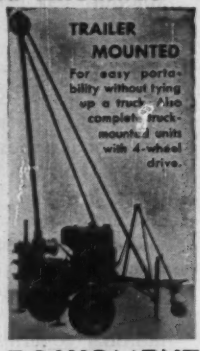

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if the national government is going to provide money to build a comparable and competitive free highway?

The proposal that the federal government assume primary—almost exclusive—responsibility for the improvement of the interstate system, estimated to cost a total of $27 billion, was justified largely in terms of savings in vehicle operating costs, fewer accidents and more efficient transportation. Thus it is largely a program to provide values of optimum mobility.

To consider this new policy appropriate at all seems to require a finding that the states have been either unable or unwilling to improve the interstate system enough to fulfill the national interest. Or perhaps the volume of interstate movements has grown so that the states should no longer be relied on to meet the overall national interest.

If this is so, it is clearly desirable that the national government concentrate its efforts on the interstate system, which is the system of most importance to the national economy and to national security.

This program, as I see it, should not be looked on as a grant-in-aid program in the traditional sense. Nor should it be looked on as a temporary measure to overcome a huge backlog of accumulated needs. Once the national government embarks on this program, I think it will continue.

The new basic policy issue is whether or not to have a national system, nationally financed. It will be hard to bring about a clear-cut decision on this issue. The advisability of using state highway agencies in the construction, operation and maintenance of the national system—almost as if it were a contractual arrangement—is apparent. The precedents, procedures, and patterns of 40 years of highway aids will influence public reaction to any federal highway program.

It may now be useful to consider the federal highway role in two phases. A searching reappraisal of regular federal-aid programs for primary and secondary highways is indicated. It may well be that these programs should be curtailed to the point where they fulfill only traditional and very limited objectives of the national government, which quite properly can be financed from general tax revenues. On the other hand, the national government would assume responsibility for the interstate system and develop special financing to take of it.

The prospect of a truly national highway system presents a number of new problems, among which user taxation by the federal government is prominent. A bona fide user-tax system at the national level should be adopted, in my view, to promote equity as between highway users and other members of society and among different classes of users. It should also promote neutrality of national tax policy as it affects different transportation agencies.

These objectives can hardly be met merely by renaming the present federal excises on motor fuels and other automotive products. These excises were not conceived nor have they ever been evaluated as compensation for highway use. Thus, it is not surprising the proposals blossomed forth in Congress for special taxes on certain highway users to supplement the gasoline tax—an action that all of the states, having had long experience in such taxation, have found necessary.

Regardless of whether the particular taxes or the rates considered this year were appropriate, it seems clear that the national government, faced with a new concept of highway finance, should evaluate the problem of distributing the tax burden for highways in new terms. It seems equally clear that this will suggest a very different distribution than the present one. The possibility of some coordination between national and state user-tax systems deserves early consideration.

Another problem is credit vs. pay-as-you-go. The impact of deficit financing on the national economy ought never be ignored, but if users are to pay directly for improvement of the national system, thought should be given to spreading at least part of the cost over the useful lives of these capital improvements. A judicious combination of pay-as-you-go and pay-as-you-use is consistent with current theories of highway finance.

Finally there is the problem of distribution of federal funds. With adequate financing, the national government should develop the entire system of interstate highways in accordance with construction needs, giving priority to those that are most pressing. However, it may be desirable to establish a base formula, if for no other reason than to give the states a foundation for the development of future plans and work programs.

There can be no serious doubt of the need for a vastly expanded highway program or of its economic justification. Therefore what is needed, right now, is early and definitive action in one way or another by the national government.

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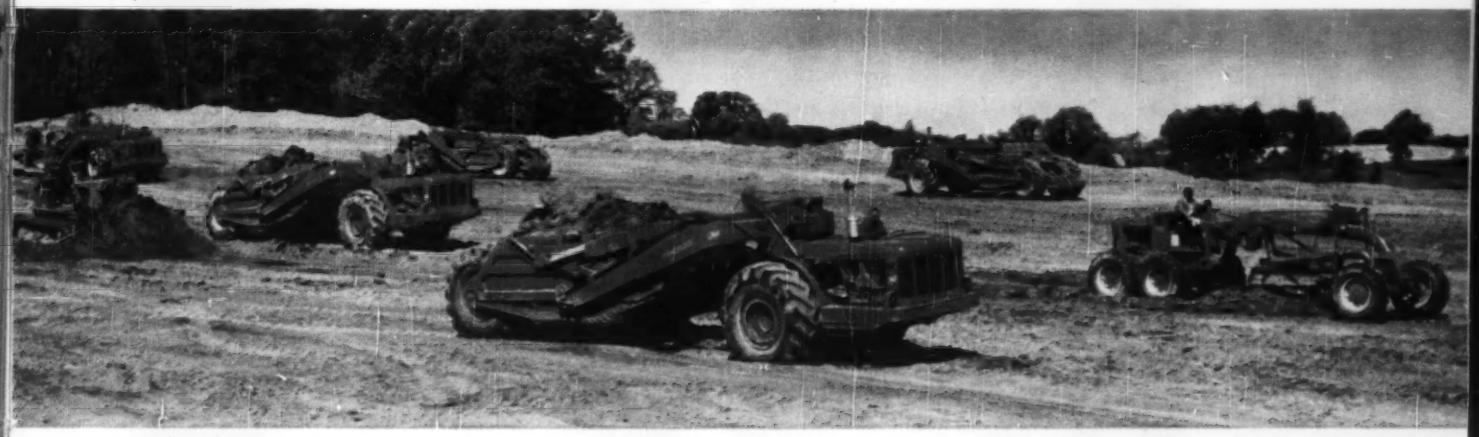
Expanding, modernizing and maintaining our highway system is one of the really big jobs facing our country. It is so big that only a comparatively few years ago, with the equipment then available, projects like our big superhighways would have been prohibitive in time and money.

Today, we're ready for this big job. The men who plan, design, build and maintain our roads — *and* the machines they need — are equal to the task.



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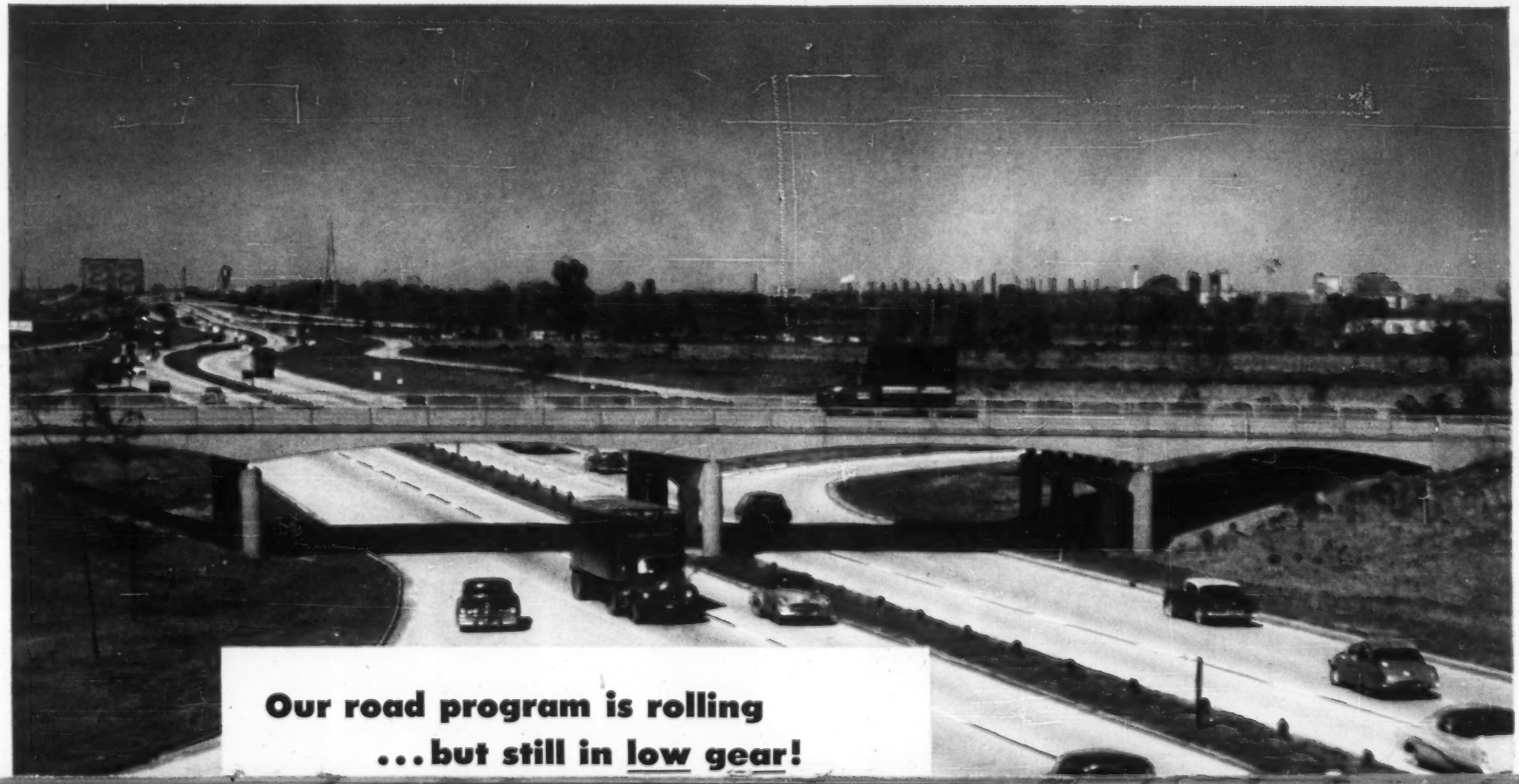
Model D Motor Grader — 50-hp gasoline or diesel engine

A Special Message to the Public from Allis-Chalmers

To urge action on the nation's road program,
this Allis-Chalmers advertisement appeared in the
December 10 issue of the SATURDAY EVENING POST



Every road-building job you see is a promise of better living and better motoring to come.

Link by link, a part of the road network we so urgently need is taking shape. Superhighways are the newest and most spectacular links. But as every driver knows, state, county and farm-to-market roads, together with city streets and expressways, are in drastic need of attention and ***action***, too.

Here's what government leaders have been doing about this problem:

Recommendations of the President's Committee: Double our present program . . . to complete a highway system by 1964 that would be adequate until at least 1974. Suggested financing beyond existing taxes—largely through bond issues.

The Senate: Proposed a five-year plan (Gore Bill), including a 300 percent increase in federal aid to states, providing for modernization of primary, secondary and urban roads. Financing plan yet to be specified.

The House of Representatives: Discussed several long-range approaches to the highway problem, all acknowledging the need for large-scale planning. One (Fallon Bill) was based on "pay-as-you-go" financing through increased user taxes.

The Governor's Conference: Urged that a nationwide highway program should be vigorously pushed . . . stressed federal responsibility for the key interstate system . . . widespread progress at the state level was also reported.

The American Municipal Association: The nation's mayors adopted a formal resolution urging prompt-as-possible action on a highway bill.

Let's shift into high—NOW!

As yet, no definite program has been approved. Meanwhile, we're all paying the ***cost*** of better roads whether we have them or not . . . in frayed nerves, tragic accidents, and excessive transportation expense in almost everything we buy.

Just about everyone agrees we ***must*** have a ***complete*** highway modernization program. We can do it if we all get together on one plan soon. Allis-Chalmers, Milwaukee 1, Wisconsin.

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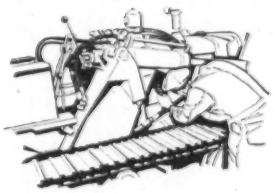

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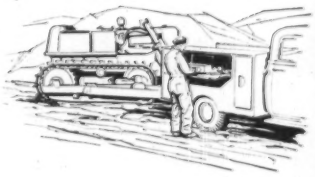

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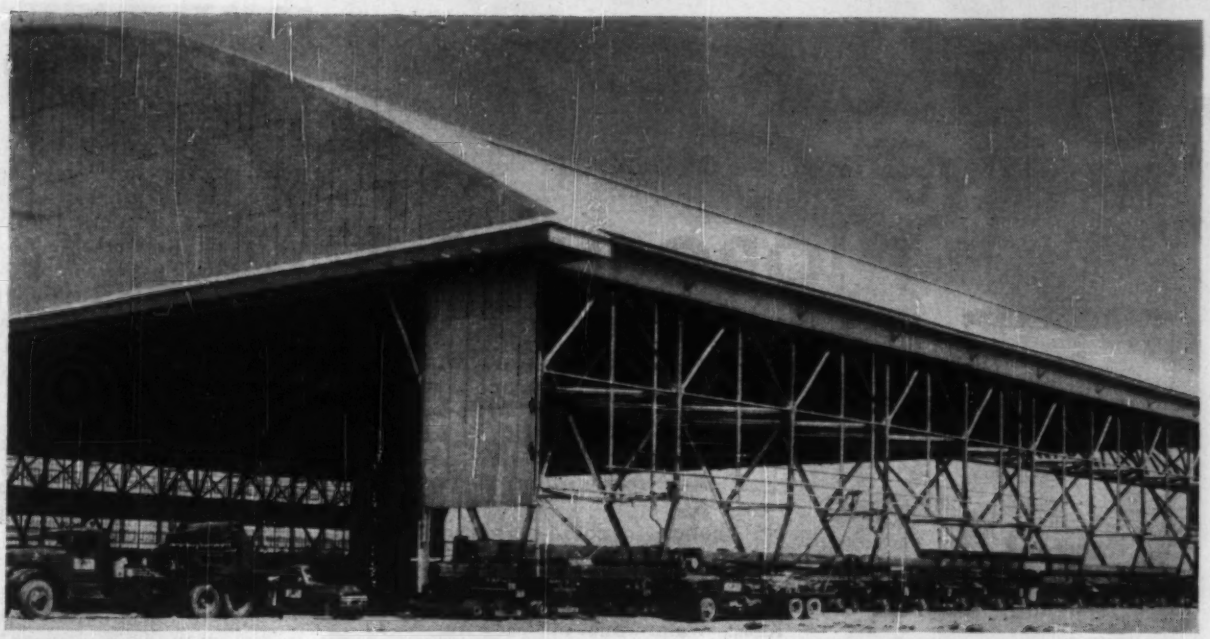
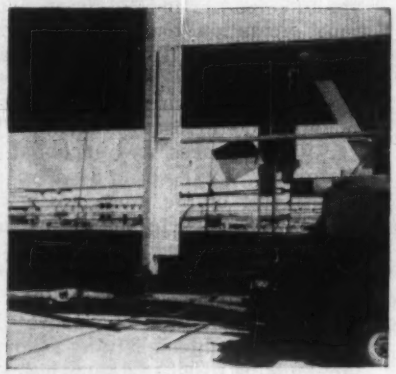
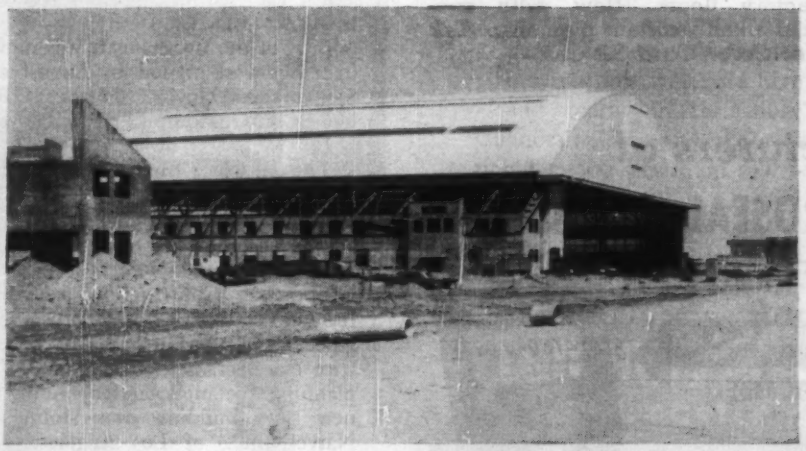


MOVING—Rubber-tired movers' dollies supporting 1,400-ton, 70,750 sq ft hangar during two-mile move at Edwards Air Force Base in California. Hangar made a right angle turn part way through the moving by turning the dollies 90 deg.



PACKING—Hangar walls were tied together during move by permanent tierods dug out of the hangar floor as well as temporary steel cables. The 2½-in. tierods are encased in 3¼-in. metal sleeves. Cable reinforcing is 3 in. dia.

Fleet of 54 Dollies Moves 1400-Ton Hangars Two Miles



NEW LOCATION—Reinforced concrete shop structures awaited each hangar's arrival at new location. Cost of moving the two hangars plus construction of the new shop wings was $1.5 million. The hangars cost $3.5 million to build in 1944.

Two 250x283-ft hangars have been moved across two miles of southern California desert in an operation that ranks with the biggest building moving jobs in construction history. The work was accomplished by Vinnell Construction Co. and Star House Movers Inc. as part of the modernization program at Edwards Air Force Base 100 miles northeast of Los Angeles (ENR March 25, 1954, p. 44).

In changing Edwards Air Force Base from World War II training field to a major flight test center of the Air Research & Development Command, a complete new base layout had to be adopted. Main reason was that alignment of the new 15,000-ft runway did not fit existing building arrangements. So the Air Force was faced with the problem of either building new hang-

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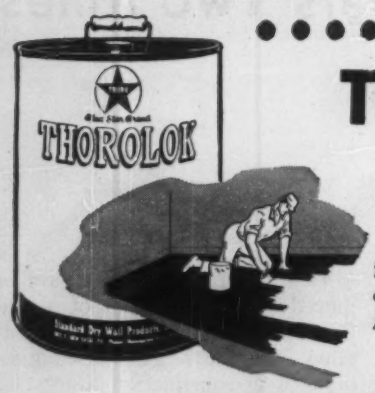

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ars to replace the two World War II units or moving them.

Neither the Air Force nor the Corps of Engineers—which acts as the Air Force's design and construction agency—are sure just how much the move saved. The hangars cost $3.5 million in 1944. Similar facilities might cost as much as twice that now—or maybe even more. Moving the hangars cost only $1.5 million. And much of that cost went toward replacing the two-story reinforced concrete shop buildings that run along one side of each hangar.

First step in the move was to take off the hangar doors. Then the contractor dug into the concrete floor slab to remove the 2½-in. dia tierods that span between legs of the hangar. (Tierods are encased in a 3½-in. dia metal sheaths.)

After the walls were thoroughly braced by timber cribbing, the hangar was jacked up using 50-ton jacks—about 50 were needed. Then 54 rubber-tired dollies were lashed to the structure for the move. As an additional precaution, temporary cable ties also were spanned between the hangar walls.

Motive power came from two truck-mounted 300-hp logging winches. The trucks were braked and anchored to deadmen.

First part of the move was across the existing concrete apron and runway. The rest of the move was across the desert where preparation of a roadway was a simple matter for bulldozers.

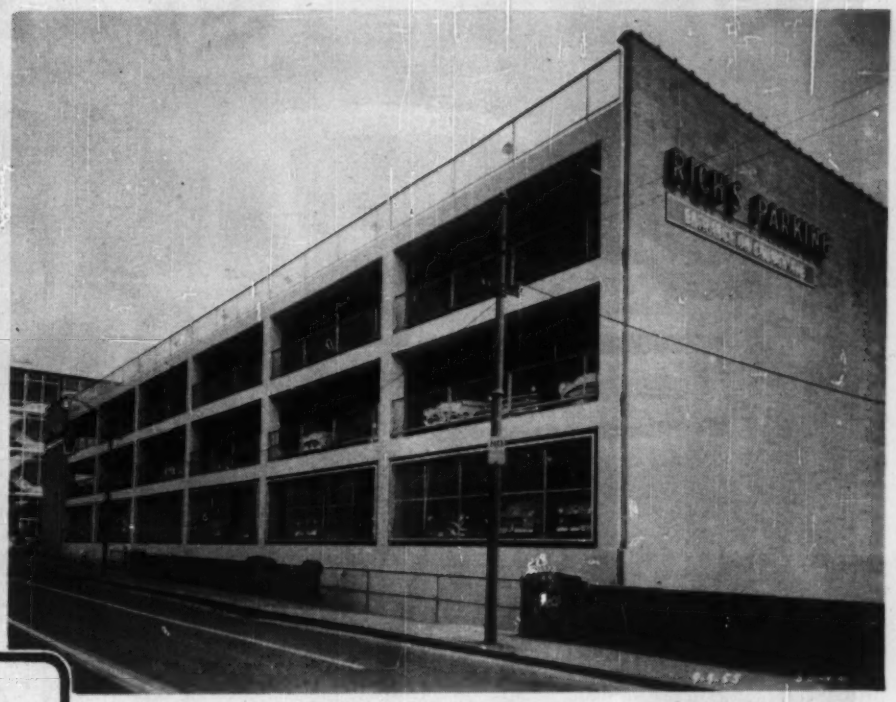
Part way through the move the path made a right angle turn—although the building itself did not have to be rotated. The turn was accomplished by jacking up the hangar and rotating the dollies 90 deg.

Even before the move started new shop building wings had been constructed at the new location. This was aimed at minimizing out-of-service time of the facilities.

First of the two hangars was moved in a five-week period in August and September. Moving of the second hangar was accomplished in November.

The Air Force Flight Test Center is under the command of Brig. Gen. J. S. Holtner. Basic planning for the move was under the direction of Lt. Col. Malcolm P. Elvin, chief of base development. Construction agency is the Los Angeles District, Corps of Engineers, Col. Arthur H. Frye, Jr., district engineer. Architect-engineer for planning the move and detailing the new shop buildings was Holmes & Narver, Inc., of Los Angeles. Col. Edwin M. Eads is South Pacific Region Air Force Installations Representative.

"...this required almost exact timing on Connor's part from the drafting room to delivery at job site"



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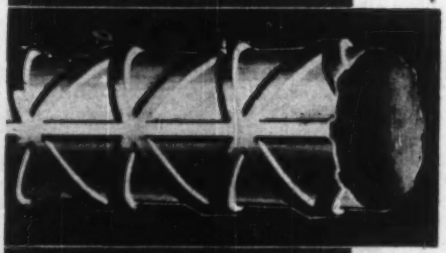

Letters from contractors commending a job well done are pleasing to receive—especially so when unusual circumstances call for exceptionally good service.

The quotations in the above headlines are from a letter received by Connors recently from Mr. George S. Roden of Foster & Creighton Company, General Contractors for Rich's new five-story warehouse and parking garage building in Knoxville, Tennessee. The letter states:

> "... the reinforcing steel was a number one item to meet the required schedule, which was over four times as fast as this building would have been built, working 40 hours per week. There was no place to store steel on the job site and the major portion came from the trucks directly into forms. This required almost exact timing on Connors' part from the drafting room to delivery at job site. We met our schedule with ease, thanks to Connors good service and accuracy in fabrication."

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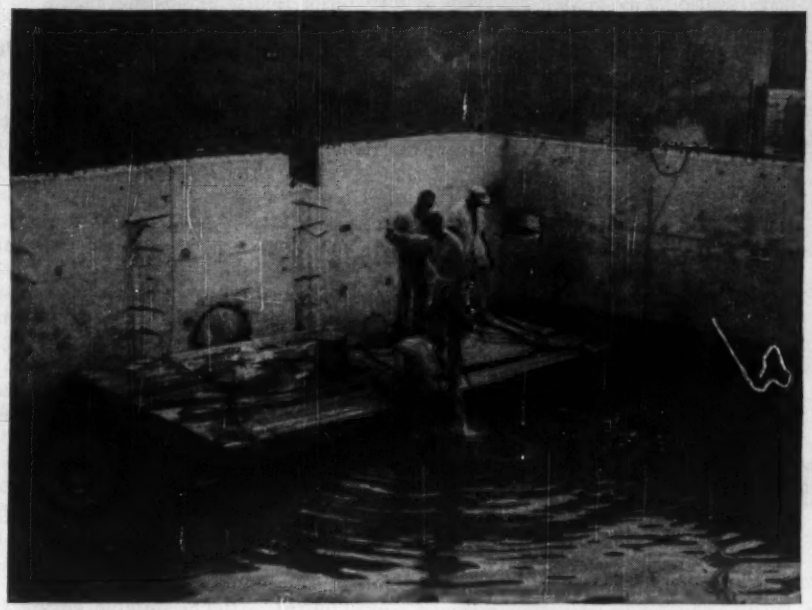
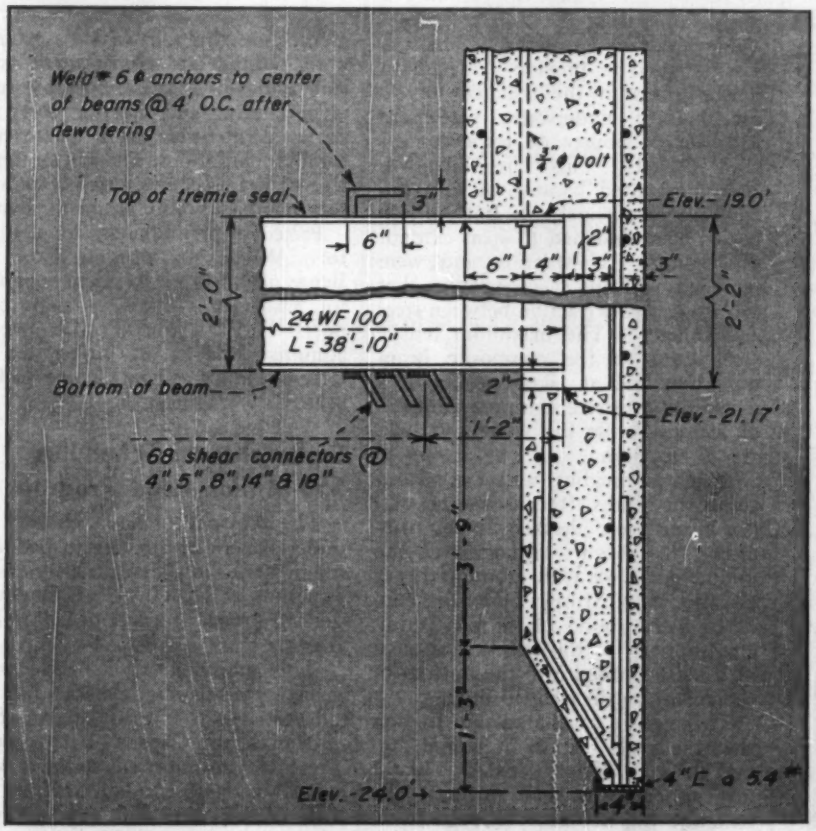
Pumping Station Is Built as Open Caisson

John A. Anderson
Chief Structural Engineer
Smith and Gillespie
Jacksonville, Florida



A TOUGH PROBLEM developed when a free-flowing spring welled out of a limerock fault during excavation. Divers were used to set and inspect steel and . . .



. . . A SOLUTION WAS WORKED OUT with unusual floor slab design featuring steel beam reinforcement and tremie placement in a cost-saving bottom seal.

Unusual soil and foundation conditions found during recent construction of a large pumping station for the sewage treatment plant at Hollywood, Florida, has forced adoption of unusual design and building procedures to solve problems encountered.

Pre-design borings at the plant site indicated a substantial lens of limerock at the elevation of the pumping station foundation slab. But excavation for the structure revealed a fault that contained a free flowing spring in the rock lens under what was to be one corner of the building. Having relied upon the lens to effect a partial seal during construction operations, the new development called for complete revision of operational technique.

Treatment plant layout and limited available land made it impractical to move the site of the station to insure sound rock bearing for the full area of the bottom slab. Though the floor slab was planned to be 24 ft below grade, ground water at the site is normally only a few feet below ground surface. To resist hydraulic uplift and decrease the thickness of and reinforcing in the bottom slab, the engineers had planned to anchor the slab to the rock lens with dowels grouted into drilled holes. Had sound rock been present, the contractor could have dewatered with wellpoints and pumps and carried on in the open excavation without extensive sheeting and bracing. The volume of flow of the spring, however, made this impractical.

• **Three methods might work**—A study by engineers brought forth several methods of coping with the problem, but only three warranted further consideration as practical solutions. All, because of the water condition, required placement of a tremie slab 43-ft-6-in. x 37-ft-2-in. in horizontal dimension. Taking design loading for the seal slab as 20 ft plus seal thickness times 62.5 lb per cu ft minus the unit pressure per sq ft exerted by the seal, the three methods of construction selected for evaluation were:

1) Driving of steel sheetpiling on line with the exterior face of the walls, with sheeting remaining in place as outside forms for placement of a 9-ft-thick tremie slab.

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2) Driving of steel sheetpiling four feet outside the walls to be salvaged after construction, and the placement of the 9-ft-thick tremie slab.

3) And construction by the open caisson method, entailling refilling the excavation with graded sand, construction of the station walls above grade, sinking of walls by excavation from within and placement of an unusual 3-ft-thick tremie slab reinforced with inverted steel beams.

Based upon unit prices furnished by the contractor, extra cost for each of the methods was estimated as follows:

Method #1.....	$50,000
Method #2.....	$56,000
Method #3.....	$33,000

• **But one solved all problems**—Savings affected by choice of plan #3 resulted from elimination of all steel sheetpiling, reduction in rock excavation by placement of the 3-ft-thick sealing slab instead of the 9-ft one required by the other plans and reduction in concrete by an estimated 70%.

By using the wellpoint system installed prior to excavation, the contractor found that he could hold groundwater to elevation minus 6, so the total head of water acting on the bottom of the slab after dewatering the inside of the station would be 16 ft. Upon cessation of pumping, it was assumed that the water elevation would revert to datum level. The slab was designed to provide a maximum tensile stress in the concrete of 50 psi due to underwater placement and the possibility of formation of sand pockets. This possibility was later discounted because of the concrete placement method. Bottom slab beams were designed to span exterior walls during construction and were provided with shear connectors that furnish composite action between steel and concrete. The maximum tensile steel stress in the composite beam was computed at 19,650 psi with a maximum concrete compressive stress of 750 psi while the water was held at −6 elevation.

A center dividing wall was placed across the beams after dewatering, and the beams were checked as non-composite steel beams supported at the middle and ends with groundwater at elevation zero. Stresses under this condition were around 14,800 psi. Perimeter support for the slab is furnished by a ledge formed into the bottom of the exterior walls prior to sinking.

The highest calculated skin friction that the walls had to overcome during sinking was calculated at 230 psf just prior to the final seating. The structure was not heavy enough to resist the calculated floatation force after dewatering, and a theoretical skin friction of 40 psf was needed to hold it down. This, as indicated by the success of the operation, was developed.

Top wall bracing was designed to span from wall to wall, with only four beams required, thus leaving the interior free from obstructions.

• **Execution is proof of theory**—Prior to filling the excavation with graded sand, large concrete blocks were placed at each corner of the pumping station at the elevation of the bottom of the walls. The hole was then filled in, forms were built of plywood with 2x8 studs and wales and the first of two lifts of concrete was cast. After curing, walls were allowed to settle as excavation proceeded on the inside. Constant transit checks for vertical alignment resulted in final seating on the prepared blocks to within ⅛-in. of planned elevation. Steel tremie beams were placed and inspected by skin-divers.

The contractor elected to use the intrusion-grout method of concrete placement in the seal. Selected aggregate was placed on the foundation and between the beams, and the grout was injected under close supervision and control. After a suitable curing time the interior was dewatered, and it was found that a good seal had been affected. The station construction was completed in the dry.

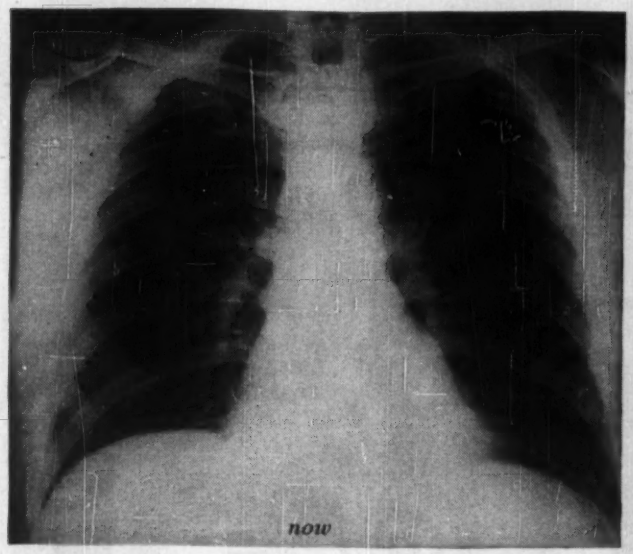
The success of the open caisson method on this job, with its groundwater control and embarkment problem, indicates that considerable sums of dewatering and sheeting costs will be saved on future work where comparable conditions are encountered. Use of the steel beam-tremie slab on future projects also promises savings.

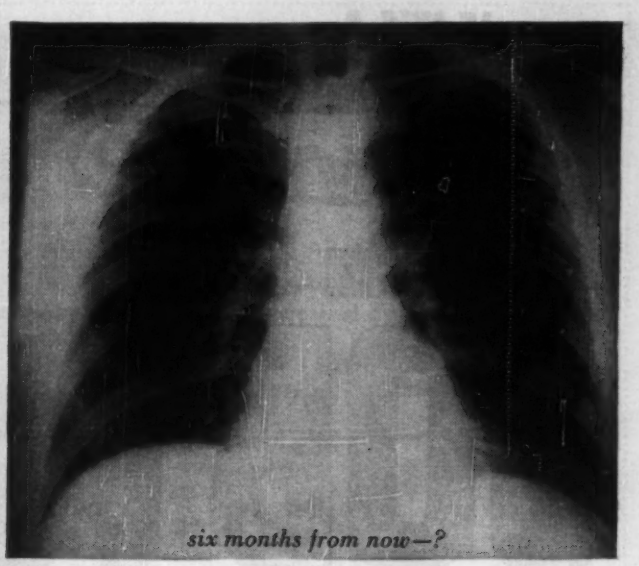
Project superintendent for contractors, Wiley N. Johnson Co., was Benny Johnston. Resident engineer for Smith & Gillespie, design engineers, is Herb Pickle, with over-all administration of the project for the City of Hollywood by George A. Gieseke, City Engineer.

Saskatchewan Schedules $50-Million Road Program

The province of Saskatchewan will undertake one of the biggest roadbuilding programs in Canadian history—construction of 12,000 mi of all-weather gravelled roads at a cost of $50 million over the next 10 years.

This prairie province, with its extensive farmlands, already has the greatest length of roads of any of the provinces of Canada but most of these are unimproved country types, not always usable in bad weather. The new network will link together parts of the province not already served by the present highway system.





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That's why we urge you and every man over forty-five to make semiannual chest x-rays a habit —for *life*.

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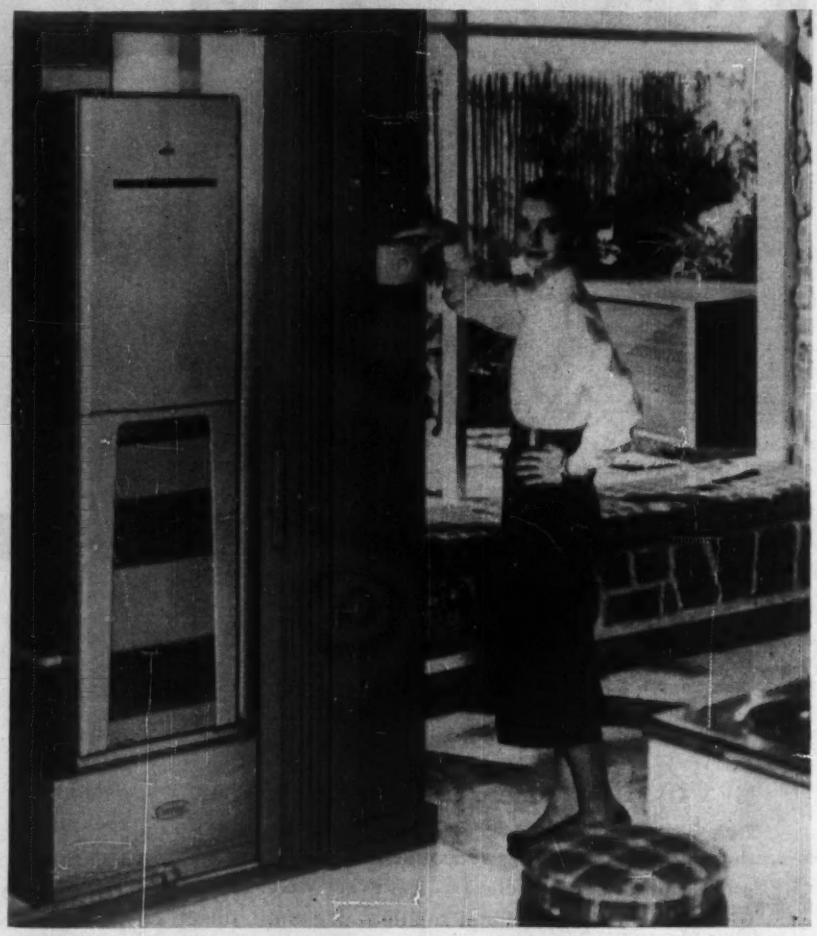
New Products



PLENUM at base of counterflow furnace accepts cooling coils of matching condenser-compressor unit, seen outside house through window at right.

Carrier Blows Hot and Cold in 1956

Thirty years ago, Carrier Corp. designed and built its first forced air furnace for residential use, and so entered the heating field. A few years later during the depression, the furnace was dropped. The public wasn't in the market for luxury appliances.

This year, emboldened by booming residential air conditioning, Carrier decided to get its feet warm again, and is introducing a brand new, high styled, forced air residential heating furnace for 1956.

Carrier's move is a strategic one. In the last few years, hot water and steam heat have taken big bites of the new housing market. And conditioned air won't flow through water pipes. By promoting forced air heat, Carrier can protect its future market for centralized residential air conditioning, and at the same time sell complete heating and cooling units, or heating units alone that are designed with conversion to air conditioning in mind.

The new furnace, according to Carrier, can be converted to air conditioning at a saving up to $150, compared to the cost of converting standard hot air installations. Furthermore, all specifications for installing the furnace are written for the needs of air conditioning—taking into consideration such problems as condensation, air supply, and delivery points.

The key feature for conversion of the furnace is a special matching plenum chamber with a removable panel that is dimensioned to take the cooling coils and condensate drain of the cooling unit. The separate compressor and air or water cooled condenser are in a remote weatherproof box that can be placed on an exterior wall, outside the house, or wherever space and outside air are available.

The thermostatic control for the furnace is ready for summer duty. Substitution of a new back plate is the only change required, as the furnace control wiring is designed to carry the air conditioner control as well.

The furnace is compact, standing 4½ ft high and 28 in. deep. Width varies with capacity from 2½ ft down to only 14 in. Upflow, counterflow and horizontal versions of the furnace operate on either gas or oil fuel. Gas heat capacities range from 75,000 to 231,000 Btu per hr, and oil fired models turn out 91,000 to 231,000 Btu per hr. Air conditioning from 2 to 7½ hp can be installed with the furnace or supplied later for conversion.

Carrier polished up its "Winter Weathermaker" trademark for the new furnace, and hired a prominent industrial designer to put it in a compact, conservative package to conform to contemporary decor. The control unit is wall mounted with a removable cover that can be painted to match room decoration.

Elbow Level Brick Bracket Keeps Material Close to Job

Elimination of some of the stoop and stretch involved in bricklaying promotes better workmanship and can actually cut costs, claim the manufacturers of a new bracket designed to keep masonry materials at elbow height and on a convenient level with the last laid course as the wall rises.

Shown above in use on a Dayton, Ohio building, the "Mobile-Bracket" is adaptable to any tubular scaffold system. The mason's scaffold and material scaffold plank ride up from ground level with the bracket. SAFEWAY STEEL SCAFFOLDS, INC., DETROIT, MICH.

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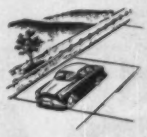

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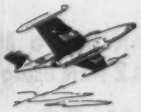

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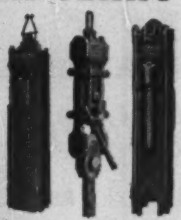

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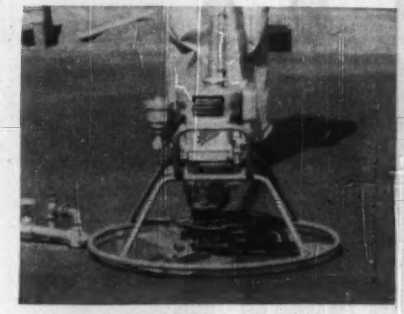
Molded glass-reinforced plastics truck bed covers of one-piece, lightweight design will convert ½ or ¾-ton pick-up trucks to enclosed panel design. The tops are weather resistant, and have good heat insulation qualities and sound damping properties. For commercial purposes, the tops are produced in two designs, one with windows and a rear lift door, and the other without windows or rear closure. Two men can mount or remove the truck covers in less than five minutes. The covers will fit Chevrolet, Dodge, Ford, GMC, International and Willys truck bodies. Eastern Glas Laminates Inc., Meyersdale, Pa.

Electric Brush Cleans Up Structural Steel

A power brush that looks like a bristle-wheeled wheelbarrow is reducing hand brushing time on structural steel 25 to 75%, according to users reports to the manufacturer. The brush has a chain driven arbor which carries from 1 to 11 wire brushes of 1½ in. width, so that effective brush width can be varied to suit the distance between flanges.

A reversible 3 hp electric motor powers the brush. The bristles are automatically resharpened when the machine is inverted and the motor reversed. Trollies on both sides of the machine help the operator to guide it.

The outfit, with eleven 15 x 1½ in. wire brushes and extension cord, costs $750 fob Oakland, Calif. Extra brushes are $11.25 each. Independent Iron Works, Inc., 8th and Pine Sts., Oakland 20, Calif.



New Thor Power Trowel Has Double-Purpose Blades

Thor Power Tool Co's brand new Industrial Products Division has entered the construction field with a 2 hp portable rotary trowel. Adjustable pitch blades and center-suspension blade design permit use of the same blading for both floating and finishing operations. The blades are reversible, so they may be turned end for end when worn on one edge.

A 29 in. dia tubular frame acts as a non-rotating guard ring, so the trowel is safe to use close to walls or other vertical projections. The four cycle 2 hp motor is connected to the blading by a centrifugal clutch so that the blades do not revolve at idling speed. Blade working speed is adjustable from 45 to 100 rpm.

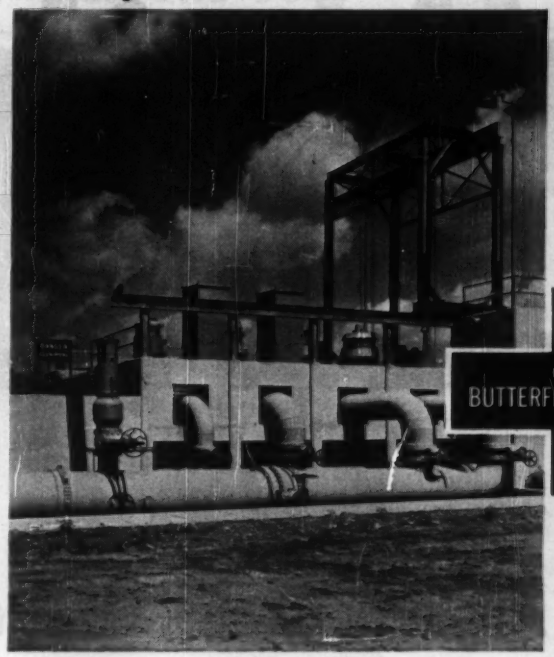
The trowel weighs 70 lbs complete, but for finishing operations where more weight is necessary, two 14 lb bars can be cradled on the engine supports to provide additional blade pressure. THOR POWER TOOL CO., 175 N. STATE ST., AURORA, ILL.

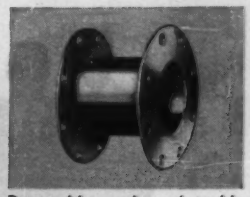
Hand-Propelled Truck Hoists One-Ton Loads

For carrying, lifting and stacking loads up to 2000 lb, a new hand-propelled fork lift truck provides economical materials handling. The small trucks have hydraulic lifts, either hand or battery powered, and are designed to serve as both platform and straddle trucks. With legs adjusted to straddle position, the forks lower flush with the floor.

Power-operated models have built-in battery chargers and remote push button lift control. Minimum to maximum lift is 2 to 56 in., leg width is adjustable to two positions: closed 20 in. and straddle 30 in. The platform dimensions are from 28 in. square, up. Overall length is 52 in., turning radius is 60 in. and overall height is 74½ in. Specifications to meet other dimensional requirements will be met by the maker. THE OSTER MANUFACTURING CO., BOX 4369, CLEVELAND 32, OHIO.

Use of compact R-S Rubber Seated Butterfly Valves in this common header permitted close coupling of all pipe, resulted in a substantial saving.





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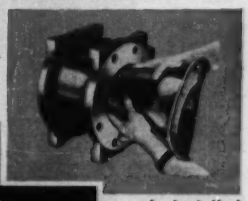

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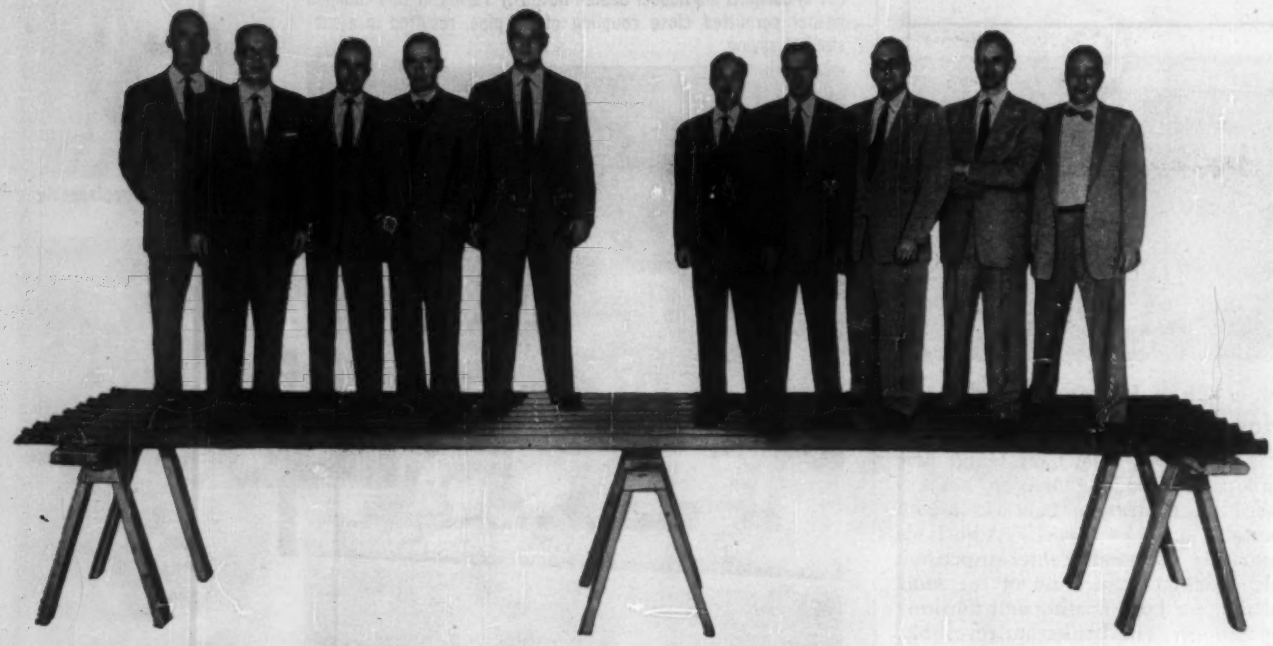

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For full information on V-Beam . . . (1) Write for the new AIA Data Sheet; (2) Ask for the names of competent nearby firms specializing in aluminum construction; (3) Call the nearest Alcoa sales office and request the help of an Alcoa architectural consultant. ALUMINUM COMPANY OF AMERICA, 860-M Alcoa Building, Pittsburgh 19, Pa.

SPECIFICATIONS

Lengths	5′ to 18′ in 6″ increments
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Coverage	39″ (8 corrugations)
Pitch	4⅞″
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(Safety factor of 2)

Purlin or Girt Spacing	Load (lb per square foot)
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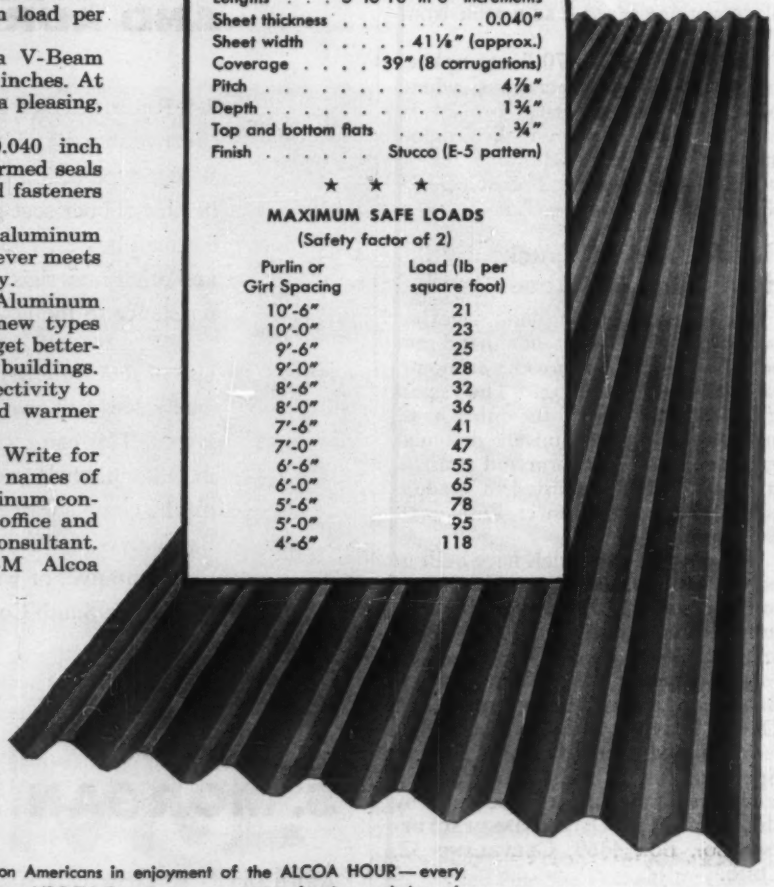
10′-0″	23
9′-6″	25
9′-0″	28
8′-6″	32
8′-0″	36
7′-6″	41
7′-0″	47
6′-6″	55
6′-0″	65
5′-6″	78
5′-0″	95
4′-6″	118



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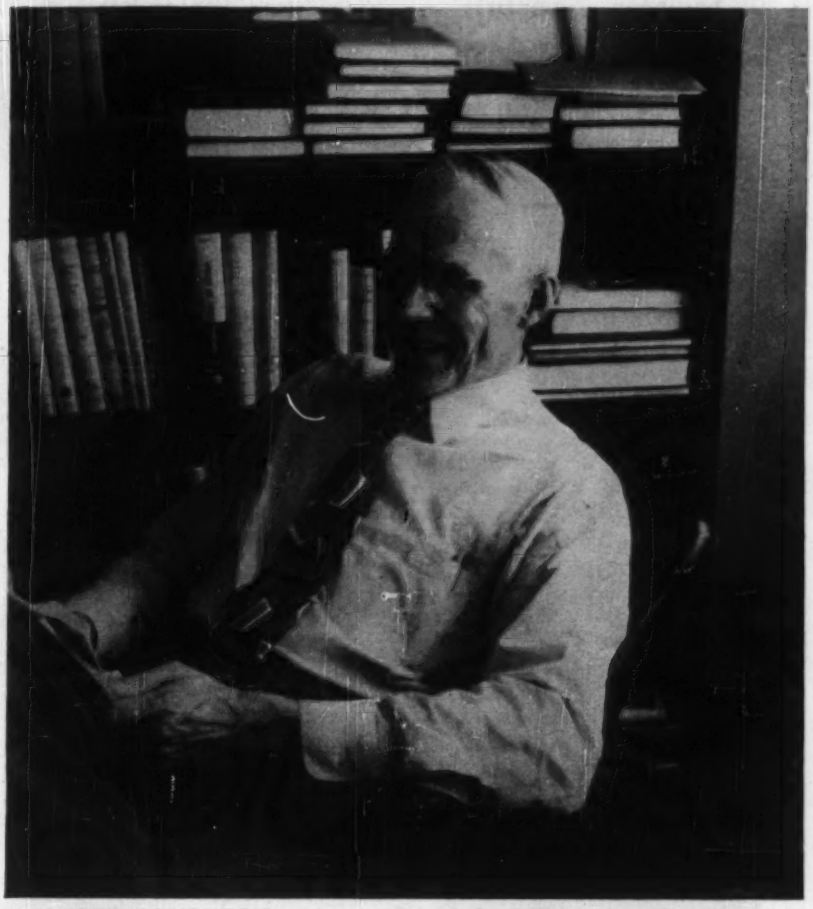

VAN TUYL BOUGHTON, senior associate editor of Engineering News-Record, in his book-lined and busy office, which he leaves after 33 years.

Boughton Retires from ENR

On January 1, Van Tuyl Boughton, senior associate editor of Engineering News-Record, will retire from active duty on the editorial staff of the magazine where his great talents in the field of engineering journalism have been applied over the past 33 years. The decision to retire is his, and not that of either the magazine or his associates, who countered with an urgent invitation (which they hope he cannot resist) to keep his hand in with frequent articles relating to the various fields of engineering that he knows so well.

Van Boughton was an engineer before he became an editor, practicing his profession for 12 years, first in railroading and then in water power. From this background, plus service in the Army Engineers in World War I, came a remarkable ability to distinguish the significant from the merely spectacular or commonplace in engineering and construction developments. Also from the years spent as an engineer came a firm and continuing desire to advance the standing and service of the profession whenever opportunity offered. The many engineers and construction people with whom he has served on committees dealing with such important professional matters as engineering education, salaries, unionization, and engineer licensing have marked these attributes time and again with personal praise.

Add to these basic qualities a gift for writing that results in clear, unencumbered, free flowing sentences when quickly understandable description is required or in persuasive prose when stimulated thinking on a debatable question is desired, and the reason why Van Boughton is widely and properly regarded as a great engineering editor is readily understood. That is also why many of the best articles and editorials that have appeared in Engineering News-Record over the past three decades are the products of his pen—and why his ENR office has so frequently been a port of call for leaders in the construction industry.

Born in Troy, N. Y., in 1888, Boughton received his civil engineering degree from Lafayette College in 1911. Going to work immediately as a transitman on the Canadian Pacific Railway, he rose to be a division engineer on the railroad in Northern Ontario by the time World War I began.

When the U. S. entered the war he returned to New York and enlisted as a private in the 11th U. S. Engineers, a railroad regiment that was among the first U. S. units to go to Europe. By the time he was discharged in May, 1919, he was a captain and the adjutant of the regiment. In later years he authored the "History of the 11th Engineers."

Returning to the CPR as assistant superintendent of the Chapleau Division, Boughton stayed a year and a half, and then in January, 1921, joined the New York Water Power Investigation as an assistant engineer. This work led him into hydro electric operations, where he was first an inspector for the consulting firm of Parsons, Klapp, Brinckerhoff & Douglas on Sherman Island Dam and then a construction foreman on the same job for the Parklap Construction Co.

Boughton began his long association with Engineering News-Record in April, 1923, when he joined the staff as an assistant editor specializing in railway and hydro construction. Later, highways were added to his railway assignment. He has also handled the magazine's book review section for many years. Boughton was appointed managing editor of Engineering News-Record in 1928, associate editor in 1941, and senior associate editor in 1948.

From 1942 to 1944, Boughton served as a director of the American Society of Civil Engineers. Prior to that he had been secretary, director, vice-president and president of the Metropolitan Section of that society. In 1948 he was the ASCE representative on the Engineers Council for Professional Development. He also is a member of the American Railway Engineering Association and the National Society of Professional Engineers. He will begin his retirement at his home in Basking Ridge, N. J.

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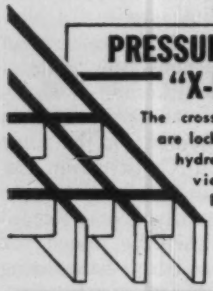

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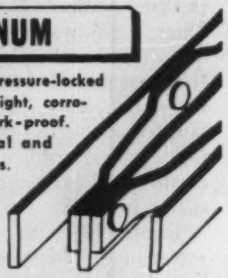

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Gamble to Direct Register Of Engineers, Scientists

The National Science Foundation has appointed Allen O. Gamble project director of the National Register of Scientific and Technical Personnel.

Conducted in cooperation with various professional scientific societies, the registration of scientists and engineers was undertaken at the direction of Congress. It is a continuing process, providing current information on the supply, specialization and utilization of American scientists and affording a ready means of locating scientific and engineering talent needed in national emergencies.

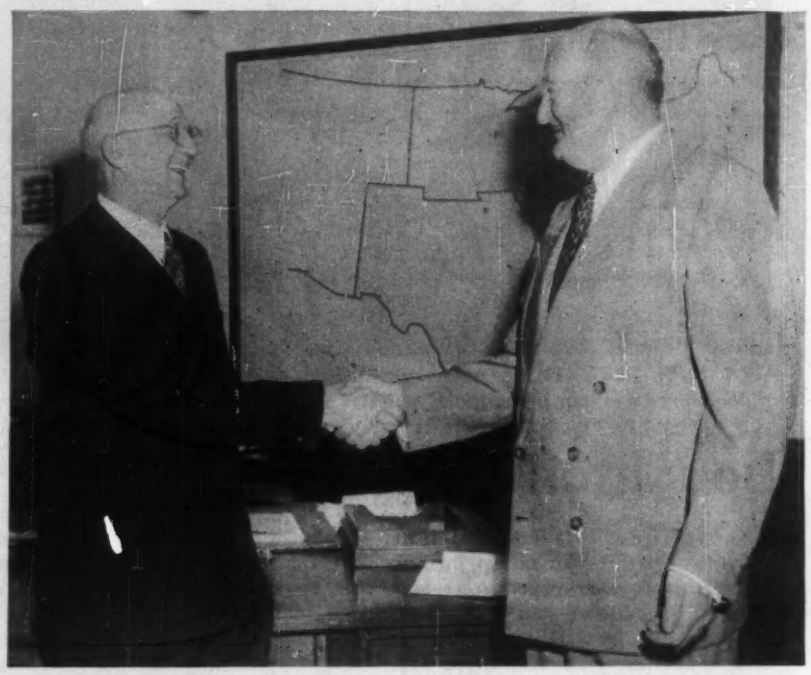
For the past nine years, Gamble has been with the National Advisory Committee for Aeronautics, directing its recruitment, examination and training programs.

W. H. Riley Appointed To State Water Post

Walter H. Riley, former head of the water resources division of the North Carolina State Department of Conservation and Development, has been appointed executive secretary of the North Carolina State Board of Water Commissioners.

The executive secretary post was created by the 1955 session of the state legislature. The board's chief functions enbrace evaluation and recommendations with respect to the state's water resources.

Riley, a civil engineering graduate of Virginia Polytechnic Institute, has recently been serving as a state hydrological engineer assigned to hurricane rehabilitation work conducted by the office of Civil Defense along the North Carolina coast.



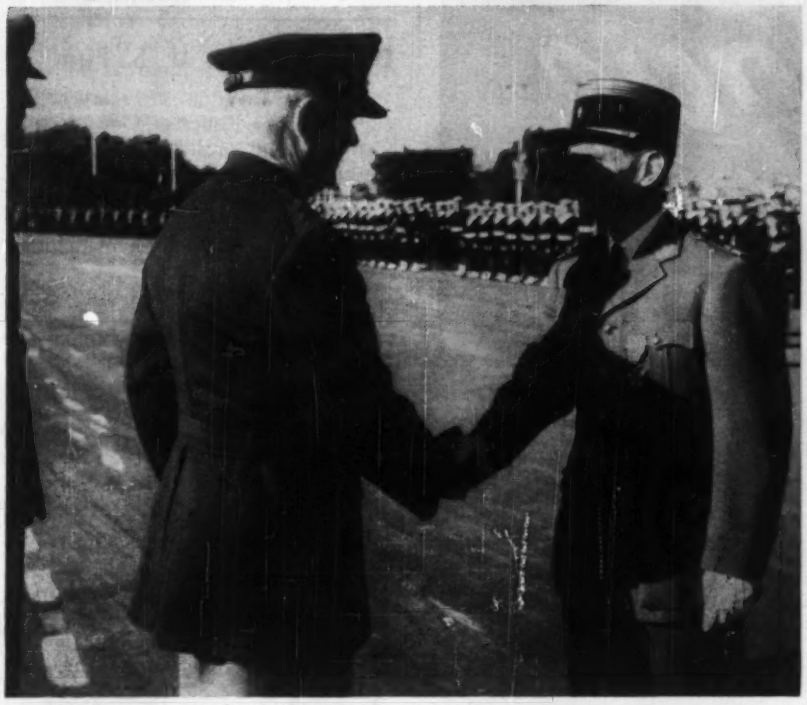
Joseph Ehlers Joins Urban Renewal Administration

Commissioner J. W. Follin (right) of the Urban Renewal Administration this month appointed Joseph H. Ehlers (left) of Washington, D. C. as assistant commissioner for Technical Services. As principal technical adviser, the new assistant will coordinate the work of the six URA technical branches.

Ehlers, who has had a long and varied career in engineering and construction, both in government and private industry, has been field representative for the ASCE during the last six years.

A consulting engineer and an attorney, he has spent many years in government service. Early in his career, he served as Engineering Trade Commissioner and Acting Commercial Attache at the U. S. Embassy in Japan, working primarily on post-earthquake redevelopment in Tokyo and Yokohama. Between periods of private practice, he later gained wide experience in public works programs of the federal government, and served for four years as chief of the Consulting Engineering Division of the Federal Works Agency and as assistant to the chief engineer.

Ehlers has been active in professional societies and construction industry groups and is now serving as chairman of the Advisory Committee on Engineers of the U. S. Civil Service Commission.



Moroccan Citation

Gen. Talley presents U. S. award to French officer for his airbase aid

Brig. Gen. B. B. Talley, U. S. Army Mediterranean Division Engineer, last month presented the United States Legion of Merit to Col. Joseph Loiret, who has been serving as chief of the French Liaison Mission in French Morocco. The award, highest for an allied officer in peacetime, was given in recognition of Loiret's assistance to U. S. forces in construction of military airbases in French Morocco.

Since 1951, the Corps of Engineers has supervised the construction, either through the American firm of Atlas Constructors or the French Liaison Mission, of the American bases in Morocco. As senior army headquarters in Morocco, the Mediterranean Division is responsible for the Moroccan airbase construction program.

The citation for meritorious service noted that Col. Loiret "has demonstrated a profound understanding of the basic principles involved and the importance of sound judgement in arriving at a solution. His services to the Corps of Engineers, United States Army, by providing rapid and wise decisions on actions requiring the prior approval of the French and Cheriffian Governments, were of inestimable value and resulted in considerable savings in time and money in the accomplishment of the construction of defense bases in Morocco."

So far, the U. S. construction program in Morocco has involved 5,100,000 sq yd of runways and aprons—the equivalent of 450 mi of first class highway; 200 mi of roads; 400 mi of pipe lines; 40 mi. of railroads; 5,000,000 sq ft of floor space in warehouses and other buildings, and all the related utilities, at a cost of $3.75 million. Work on the 1956 program is now underway.

Asphalt Institute Promotes Johnson to Staff Engineer

James C. Johnson, Oklahoma engineer for The Asphalt Institute, will join the headquarters staff of the institute next month. He will work directly with chief engineer Arvin S. Wellborn on special problems in asphalt engineering and soil stabilization.

Johnson, formerly associated with the Oklahoma Department of Highways as a soil analyst, has been on the field staff of the institute since 1951, when he received his masters degree in civil engineering from Oklahoma A&M College. A former officer in the Corps of Engineers, he served with a construction battalion in Canada, Alaska, France and Okinawa during World War II.

He is a member of the American Society of Civil Engineers and the American Roadbuilders Assn. among others.

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. . . Men and Jobs

Doanides Joins U. S. Firm

Peter J. Doanides, formerly chief engineer of Roberts Construction Company and president of Concrete Development Corporation, both of Johannesburg, South Africa, has been appointed executive vice president of Vacuum Concrete Inc., Philadelphia, Pa.

An engineering graduate of the University of Athens, Doanides has designed and constructed in Johannesburg some of the world's largest precast prestressed concrete water storage tanks.

Savin Named to M-C&S Post

Merritt-Chapman & Scott Corporation this month named A. I. Savin a vice president. Savin, who recently became a director of the company, is president and treasurer of the Savin Construction Corporation and its subsidiary, the Whaling City Dredge and Dock Corporation, which merged with M-C&S last summer.

Men and Jobs Briefs . . .

• **Education**—**Walter L. Willig,** professor of civil engineering and assistant dean of City College's School of Technology, is named president of the new Staten Island Community College in New York . . . **Frederick C. Crawford** of Thompson Products, succeeds contractor **Sam W. Emerson** as chairman of the board of trustees of Case Institute of Technology.

• **Honors**—The Brazilian government gives **D. B. Steinman,** New York bridge engineer, its Marechal Caetano de Faria Medal in recognition of his engineering contribution to the Republic of Brazil—Steinman's Florianopolis Bridge is still the largest in South America . . . Gov. Leader names contractor **M. H. McCloskey, 3rd,** engineer, **Thomas E. Bruder** and labor's **William Lifland** (sheet metal workers) to the Pennsylvania State Advisory Board on Building Construction.

• **Retirements**—Clyde E. Leonard, assistant division engineer in Denver with the Bureau of Public Roads and a pioneer in cement pavements in the Rocky Mountain states, after 37 years with the agency . . . **Edward Kromer,** architect and structural engineer now planning to do consulting work in school architecture, after 35 years with the Columbus, Ohio, Board of Education.

• **Associations**—New president of the Ohio Society of Professional Engineers is **Alfred H. Samborn,** partner in the Toledo engineering firm of Samborn, Steketee & Associates . . . **Gordon Pollock,** Sacramento, Calif., contractor, is elected president of AGC's northern California chapter . . . **Joseph J. Fleming** heads up the Home Builders Association of Delaware . . .

Timber Engineering Co., research affiliate of the National Lumber Manufacturers Association, elects research director **Carl A. Rishell** a vice-president . . . **H. Paul Seavy,** president of Mississippi Valley Engineering and Construction Co., becomes president of AGC's Memphis Builders Chapter . . . **Ralph E. Heffner, Jr.,** of Celina, succeeds to the presidency of Ohio Contractors Association.

• **Corps of Engineers**—**Lt. Col. Robert W. Dalrymple,** Denver, Colo., area engineer is assigned to the Office of the Chief of Engineers in Washington, D. C., effective Jan. 14 . . . Consulting engineers invited to advise on embankment design for the multi-purpose Cougar Dam on Oregon's South Fork McKenzie River are **James P. Growden,** Pittsburgh, Pa., **I. C. Steele,** Oakland, Calif., and **Arthur Casagrande** of Harvard University.

• **Careers**—**George J. Natt,** senior engineer with the New York State Water Power and Control Commission, is appointed director of the Westchester County, New York, Water Agency, succeeding **Simon P. Carman,** who will resume his consulting engineering practice in Binghamton, N. Y. . . . The city of Baltimore, Md., plans to appoint an assistant director of public works, responsible for construction supervision of the $70-million Jones Falls expressway.

• **Business**—**John Hallet,** veteran of more than 15 years with the Henry J. Kaiser affiliated companies, is elected vice president of Kaiser Engineers Division of Henry J. Kaiser Co. . . . **Paul MacMurray,** Philadelphia's Fairmount Park director and one-time chief of the city's Bureau of Highways, will join the philadelphia office of American Dredging Co.

Welton Becket, F.A.I.A., and Associates, architectural and engineering firm with headquarters in Los Angeles, opens a regional office in Dallas, Texas, with **Alfred Peterson,** of Kansas City, slated to become its manager . . . **R. B. Lyles,** and **George and Ralph Coppala** form the Lumberton Road Builders, Inc. in Lumberton, N. C.

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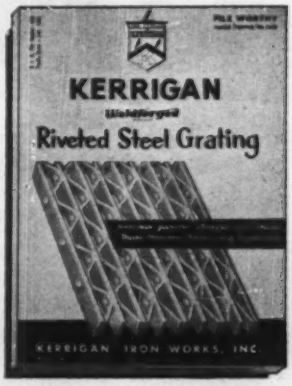

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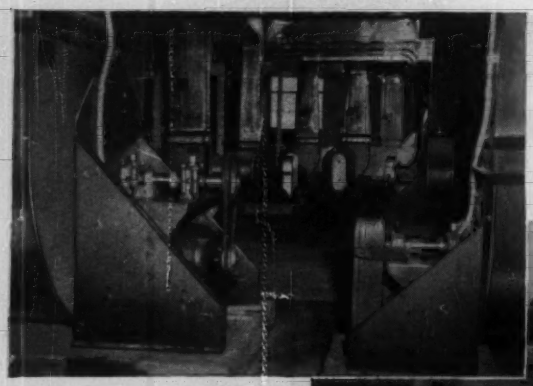
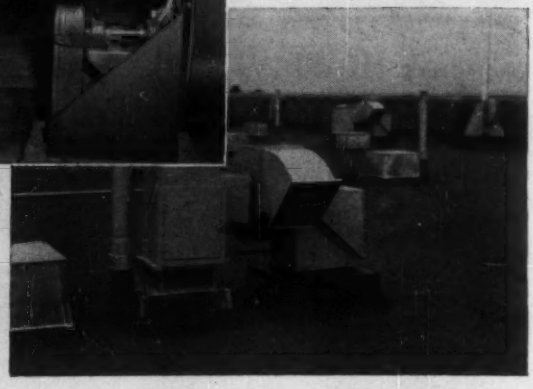


INDOORS — VENTILATION OF ZONES OR WHOLE BUILDINGS Compact "Buffalo" Belted Vent Sets are easily installed singly or in groups (at left) for varying volume requirements, or for different zones — and new fans can be easily added as ventilation requirements increase.



OUTDOORS—VENTILATION THAT DOESN'T USE FLOOR SPACE Furnished with all-weather drive, husky Belted Vent Sets are ideal for roof or other outdoor installations. Range of capacities is 500 cfm to 20,000 cfm in this line of extremely quiet, efficient ventilating fans.

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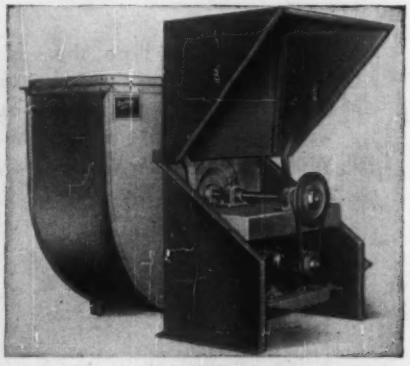

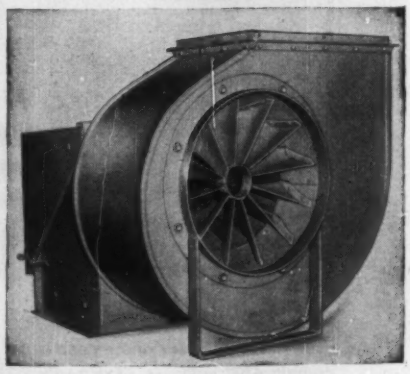

Whether you're planning a large or small air moving job, these fans will fit right into your plans. Installation can be indoors or outdoors, and their light weight and compact size simplify the job. You can get large capacity at small-fan cost with multiple-fan installations—for complete flexibility of operation. And when you put "Buffalo" Belted Vent Sets into the plan, you give your customers "Q" Factor performance — built-in Quality that means long life and satisfaction. *Write for new Bulletin 3720A* and data on new model Belted Vent Sets now being used for small induced draft applications.

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Books

Prestressing Made Simple

DESIGN OF PRESTRESSED CONCRETE STRUCTURES—By T. Y. Lin. 456 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $11.50.

Emphasis throughout this text is placed on making the analysis and design of prestressed concrete members as simple as possible. The author succeeds in striking a nice balance: The text is not too elementary for an experienced designer of reinforced concrete and not over-simplified with approximations.

Among the outstanding features of the book are the discussions of materials for prestressed concrete, including glass-fiber tendons; location of tendons in simple and continuous beams; elastic theory and limit design; partial prestress and non-prestressed reinforcements; circular prestressing; and the economics of prestressing.

The treatment of continuous beams is particularly noteworthy. Stress analysis is simplified by considering the prestress as an external force. The effect of prestress eccentricity is evaluated through the medium of vertical loads obtained from moment and shear diagrams. And the final moments are obtained by ordinary moment distribution.

Included also are brief discussions of fire resistance, fatigue strength and behavior under impact of prestressed beams and slabs. The criteria for prestressed concrete bridges developed by the Bureau of Public Roads (1954) is presented in an appendix. In addition, the book offers much valuable information on several types of prestressing systems in use in the U. S.

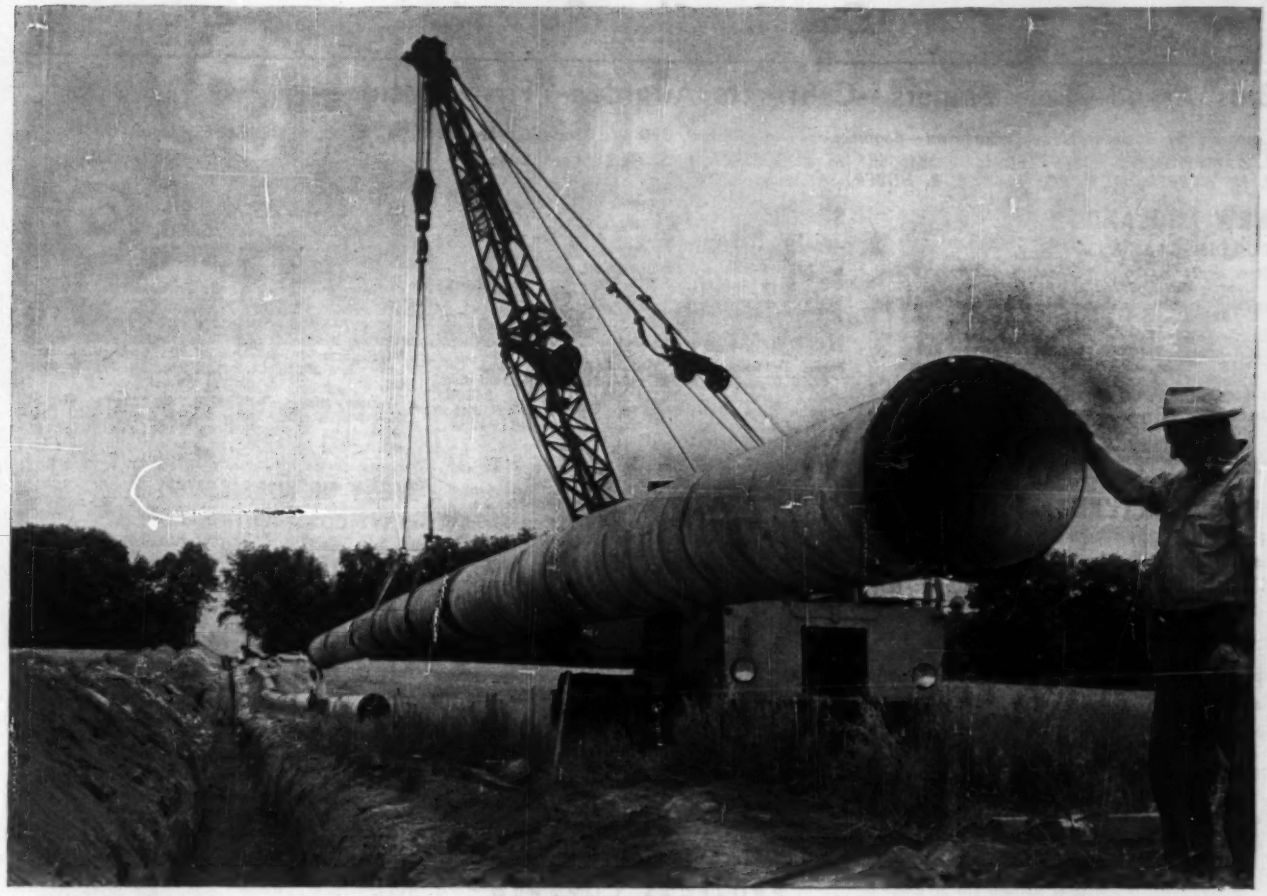
New Engineering Books

TRAFFIC ENGINEERING—By Theodore M. Matson, Wilbur S. Smith, Frederick W. Hurd. 647 pp. McGraw-Hill Book Co., 330 W 42nd St., New York 36, N. Y. $12.50

LEGAL CASES FOR CONTRACTORS, ARCHITECTS, AND ENGINEERS—By I. Vernon Werbin. 487 pp. McGraw-Hill Book Co., 330 W 42nd St., New York 36, N. Y. $6.00

ASTM STANDARDS—1955—Part I: Ferrous Metals—American Society for Testing Materials. 1,834 pp. Published by the society, 1916 Race St., Philadelphia 3, Pa. $13.50.

NATIONAL FIRE CODES—Volume 111, Building Construction and Equipment. 672 pp. National Fire Protection Association. 60 Batterymarch St., Boston 10, Mass. $6.00



Consulting engineer for the Northwest Pumping Main: Gilbert Associates, Inc. *General Contractor:* Berlanti Construction Co., Inc.

7-Mile Pumping Main Under Way in Reading, Pa.

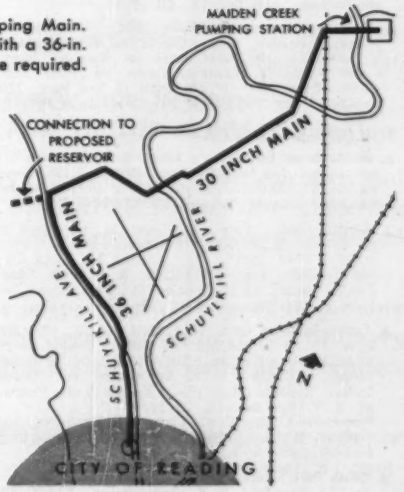
The City of Reading, Pa., a growing community of 135,000 people, is engaged in a broad program of water-supply improvement. A key phase of this program is construction of the Northwest Pumping Main, a 37,000-ft steel line supplying water from Maiden Creek Pumping Station to the center-city area, and providing connections with two large reservoirs soon to be built.

The major portion of the line consists of Bethlehem Tar-Enameled Steel Pipe in 36-in. and 30-in. diameters. The pipe was fabricated, coated, lined and wrapped at our Steelton, Pa., plant, and supplied in 40-ft lengths. In the field three 40-ft lengths were butt-welded together adjacent to the trench to form 120-ft sections. These long sections were then lowered into the trench and joined with mechanical couplings.

We suggest that you consider Bethlehem Tar-Enameled Steel Pipe for your next water-main project. Steel pipe is strong and resilient, well able to withstand shocks from both external and internal forces. And remember that each steel pipe is actually hydrostatically tested in the shop, ordinarily to twice the working pressure!

Bethlehem Tar-Enameled Steel Pipe is available in all diameters from 18 in. to the largest permitted by common carriers, and in 40-ft lengths. The nearest Bethlehem sales office would be happy to give you detailed information.

Map shows the route of Reading's Northwest Pumping Main. The 30-in. line from the pumping station connects with a 36-in. main. Three crossings under the Schuylkill River were required.



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Bids Asked—Low Bidders—Contracts Awarded—First Section—

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J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—LB & CA

Berry & Molloy, Inc., 672 Hancock St., Quincy, Mass. Owner Builds. $378,000. RESIDENTIAL DEVELOPMENT, "Stetson Park" 28 houses, RANDOLPH, MASS.

Lawson-Paige Corp., 655 Boylston St., Boston, Mass. CA Approx. $110,000. BUILDING, SOUTH SUDBURY, MASS. Linde Air Products, c/o Union Carbide & Carbon Co., East Park Dr. and Woodland Ave., Buffalo, N. Y. Bids Nov. 21. CD 11/17.

Joseph F. Kelley Co., Inc., 184 Front St., West Haven, Conn., CA, $365,000. BANK, Whalley Ave. and Sherman St., NEW HAVEN, CONN. Tradesman's National Bank. 183 Church St., New Haven, Conn. Bids. Dec. 5. CD 11/30.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ N. Y., Rochester—MEDICAL-SURGICAL CENTER—BA 1/26—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, medical-surgical center (Bldg. No. 62) Rochester State Hospital. Plans deposit $50 constr., $40 heating, $40 sanitary, $40 electric, $30 elevator, $5 refrigeration, $20 equipment. CD 5/3/45.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
J. Rich Steers, Inc., 17 Battery Place, New York 4, N. Y. CA $2,188,199, est. $2,272,000. New York State Thruway Hudson Section-Sub. 9B, Tappan Zee Bridge H.T. 55-8, Westchester Co. CD 11/1, under LB.

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y. CA $3,338,220. (4 bidders) elimination of Long Island R.R. grade crossings at Grand and Milburn Aves. in hamlet of Baldwin and at Brookside Ave. in village of Freeport, exten. of Rockwood Ave. across Sunrise Hy. and under elevated L. I. R.R. to Chestnut St. in Baldwin, Nassau Co. CD 12/5, under LB.

▲ NEW YORK—Bd. Supervs. Suffolk Co., Suffolk County Court House, Riverhead,
Moore Lopier Corp., 75 W. 190 St., New York 63, N. Y. LB $2,483,762 (1 bidder) Smith Point Bridge Contr. No. 1 the bascule span, flanking spans, approach spans, roadway lighting, toll facility and north approach plaza and roadway. Bids Dec. 14. CD 11/28.

▲ Manning, Maxwell & Moore, Inc., W. Broadway, Muskegon Heights, Mich. CA $2,062,474. Schedule I, furnishing, 49 intake gates for Barnhart Island Power Plant, St. Lawrence Contr. No. P25, NEW YORK. Power Auth. of the State of New York, 270 Broadway, New York 7, N. Y. CD 12/2, under LB.

BUILDINGS—LB & CA

▲ Meadowbrook Estates, c/o Albert B. Mecklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $1,300,000. 100 HOUSES on tract at Merion Rd. and Brentwood Parkway, BRENTWOOD, N. Y.

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y. LB $2,317,000. (4 bidders) general constr. JUNIOR HIGH SCHOOL 33, Stockton and Floyd Sts., and Tompkins Ave., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 14. CD 11/18.

▲ Lasker-Goldman Corp., 215 Montague St., Brooklyn 2, N. Y. LB $2,054,000. (4 bidders) general constr. HEALTH and PHYSICAL EDUCATION BLDG. of Queens College, FLUSHING, N. Y. Bd. Higher Educ., Queens College, Business Office, 65-30 Kissena Blvd., Flushing 67, N. Y. Bids Dec. 15. CD 11/9;
Progressive Electric Contr. Corp., 209 Tenth Ave., New York 11, N. Y. LB $449,650. (3 bidders) electrical work (Flushing, N. Y.)

▲ South Park Estates, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. $2,500,000. 203 HOUSES on tract on Roosevelt Ave. near Southern State Parkway, MASSAPEQUA, N. Y.

▲ Colmar Constr. Co., 364 Gold St., Brooklyn 1, N. Y. LB $1,321,000. (6 bidders) general constr. PUBLIC SCHOOL 140, E. 163 St. between Eagle and Cauldwell Aves., Bronx Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 15. CD 11/18.

▲ Stonehaven Homes, c/o Turano-Gardner Assocs., archts., 35 W. 53 St., New York 19, N. Y. Owner Builds. $1,900,000. 116 HOUSES, Swimming River Rd. at Riverdale Ave., NEW SHREWSBURY, N. J.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ G. E. Tillman Co., Inc., 702 N. Locust St., Centralia, Ill. LB $1,069,900. WW imprvs. consisting addns. to Cross Lake Water Treatment Plant, SHREVEPORT, LA. City, City Hall, Shreveport, La.

BUILDINGS—LB & CA

Robert Thibodeaux & Co., Box 887, Baton Rouge, La. CA $707,600. CENTRAL HEADQUARTERS comprising of 9 bldgs., 609-01-08, 11 bldgs., 661-0102, BATON ROUGE, LA. State Dpt. Hy., Highway Office Bldg., Baton Rouge, La. Bids Nov. 17, awarded Dec. 8. CD 11/23, under LB.

▲ George A. Caldwell, Box 477, Baton Rouge, La. CA $2,610,171. LIBRARY at Louisiana State University BATON ROUGE, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Dec. 6, awarded Dec. 13.

Robert Angelle, Box 86, Breaux Bridge, La. CA $828,502, 2 story, BIOLOGICAL SCIENCE BLDG. at Southwestern Louisiana Institute, Proj. AE-S1i-2, LAFAYETTE, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Dec. 8. CD 11/17.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ Mich., Port Huron—BA About 2/21—City, Jay F. Gibbs, mgr., Tenth Street Bridge, $1,400,000, Hazelet & Erdal, 53 W. Jackson St., Chicago, Ill., engrs. CD 1/28/52.

BUILDINGS—SLC

Ill., Chicago—ENGINEERING LABORATORY—Illinois Institute of Technology, 33 and Federal Sts., soon lets contract, engineering laboratory on campus for Assoc. of Americ Railroads, $400,000. Mies & Van Der Rohe, 230 E. Ohio St., Chicago, Zone 11, archts. CD 10/27/54.

BUILDINGS—LB & CA

Paul Siemon, c/o Modern Real Estate Sales, 8015 Plainfield St., Cincinnati, O. Own Forces. $787,500. 35 one story bsmt. brick HOMES off Zig Zag Rd., MONTGOMERY, O. James Wald & Assoc., 2565 W. Galbraith St., Cincinnati, O., engr. Awarded Dec. 12.

▲ Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich. CA $1,049,500. PHYSICAL EDUCATION BLDG., Western Michigan College of Education, KALAMAZOO, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. CD 12/12, under LB.

▲ Westbury Homes, Inc., 22737 E. Jefferson St., St. Clair Shores, Mich. Owner Builds. $6,000,000. Lakeshore Acres, 315 brick HOMES, ST. CLAIR SHORES, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲† Ark., Jacksonville—RUNWAY—BA 1/24—U. S. Eng., P. O. Box 867, Little Rock, runway primary, AC warm-up, pad, approach lighting, ind. waste treatment plant, Little Rock Air Force Base, $1,000,000-$3,000,000.

BUILDINGS—BA

▲ Kan., Kansas City—HOSPITAL—BA 1/26—Bethany Hospital, 12 and Reynolds Sts., 6 story west hospital wing, small north wing, remodeling present bldg. $1,700,000. Joseph Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 5/31.

HEAVY CONSTRUCTION—LB & CA

▲ TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Cage Bros., 6959 San Pedro St., San Antonio, Tex., LB $2,196,273. Proj. D FW 41, grading, drainage 5.602 mi. from proposed connection with Fort Worth Freeways near Boaz St. to approx. 0.5 mi. west of Ederville Rd., Tarrant Co. Bids Dec. 13. CD 12/1.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Harry Newton, Inc., Graham Land Office Bldg., Graham, Tex., LB $855,587, Proj. D FW 43, continuous rolled beam and plate girder bridges at Tarrant Rd., Belt Line Rd. interchange (3 bridges) Belt Line Rd. over Trinity River, Relief Bridge Revision on Belt Line Rd. and Meyers Rd. Bids Dec. 14. CD 12/1.

Mid Valley Utility Constructors, P. O. Box 2634, Houston, Tex., CA Approx. $500,000. continuous precast concrete sheet pile retaining wall, wharf, HOUSTON, TEX. Ideal Cement Co., c/o Lockwood & Andrews, engrs., 904 Union Natl. Bank Bldg., Houston, Tex. Bids Nov. 14. CD 11/10.

BUILDINGS—LB & CA

A. E. Carlstrom Constr. Co., Mankato, Minn. CA $889,870. 2 story HIGH SCHOOL, ST. PETER, MINN. Bd. Educ., E. C. Trimbo, clk., St. Peter, Minn. CD 12/7, under LB.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲† McAtee & Heathe, Inc., E. 3804 Ferry St., Spokane, Wash., LB, $1,922,558, est. $1,841,936, strengthening runway and taxiway, Larson Air Force Base, Inv. 56-16, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 14. CD 11/1.

▲ CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,
Frederickson & Watson Constr. Co., 873 81 Ave., Oakland, Calif., CA, $1,856,248, unit of Eastshore Freeway in San Leandro and Oakland 0.2 mi., wid'n. 5 bridges, Alameda Co. Bids Nov. 30, awarded Dec. 14. CD 12/2, under LB.

Chris. S. Adzovich, 444 Kenoak Dr., Covina, Calif., LB, $498,095, est. $400,000 (18 bidders) Proj. 301, Merced-Walnut Storm Drain, West Covina, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 250 Alcazar St., Los Angeles, Calif. Bids Dec. 9. CD 11/16.

BUILDINGS—LB & CA

Manderbach Constr. Co., 1837 Victory Blvd., Glendale, Calif., LB $364,605, (6 bidders) PLANT OUTSIDE FACILITIES, PALMDALE, CALIF. Northrop Aircraft, Inc., 1001 E. Broadway, Hawthorne, Calif. Bids Dec. 8. CD 11/9.

(Continued on page 82)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

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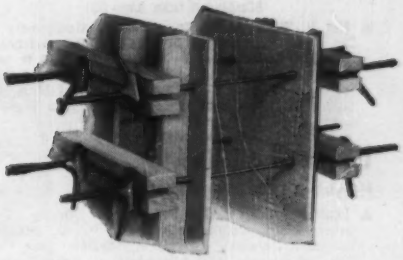
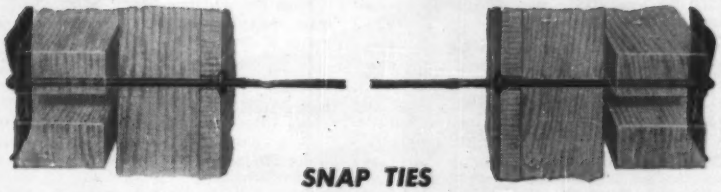
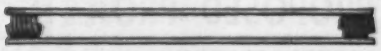


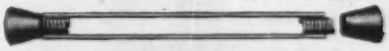
TILT LOCK CLAMPS



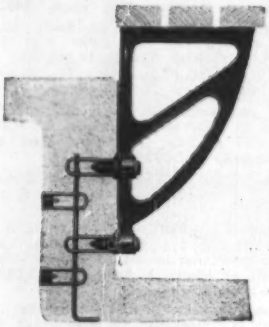
SNAP TIES



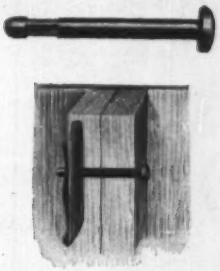
STANDARD COIL TIES



CONE-FAST COIL TIES



RISERFRAMES



PANEL LOCK BOLTS

ROD CLAMPS

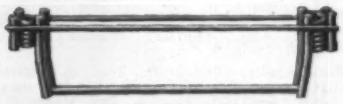
COIL LOOPS

SCREW ANCHORS AND BOLTS

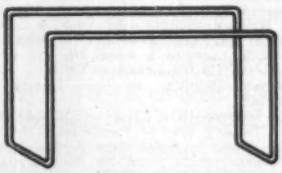
STANDARD HANGER FRAMES

ADJUSTABLE SCREED CHAIRS

"PICK-UP" INSERTS FOR TILT-UP SLABS



SPECIAL HANGER FRAMES



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(Continued from page 80)

▲ **The H. K. Ferguson Co.**, 74 New Montgomery St., San Francisio, Calif., CA, $1,000,000. electronically controlled formula feed PLANT, incl. 80x440 ft. warehouse and 3 story, 70x60 ft. mill and three 20x60 ft. storage bins, STOCKTON, CALIF. General Mills, Inc., Sperry Div., 116 New Montgomery St., San Francisco, Calif. CD 10/2/52.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Ecuador**—Bids Early 1956—Cesar Duran Ballen, General Supt., Comite de Vialidad, P. O. Box 4182, Guayaquil, grading, structures, flexible base, asph. surf. on approx. 150 kilometers of Nobol-Portoviejo Rd. in western part of Ecuador. $4,000,000.

CANADA

BUILDINGS—LB & CA

Dunker Constr. Co. Ltd., 178 Louisa St., Kitchener, Ont., CA, $400,000, PLANT KITCHENER, ONT. Bestpipe Ltd., 681 Ottawa St. S., Kitchener, Ont. Eric R. Wilson, c/o owner, engr. Awarded Dec. 1.

▲ **Smith Brothers Constr. Co. Ltd.**, 1740 Ellen St., Niagara Falls, Ont., CA $1,646,107 (6 bidders) general contract, 264-bed and 44-bassinets 3 story, rein.-con., HOSPITAL, NIAGARA FALLS, ONT. Greater Niagara Hospital Trust, Niagara Falls, Ont. Bids Dec. 1, awarded Dec. 12. CD 11/10.

PROPOSED PROJECTS

WATER SUPPLY

Minn., Red Wing—City, H. Nordholm, clk., furnish, erect 300,000 gal. water tank on Sand Hill, $100,000, J. F. Enz, city engr.

N. Y., Manhasset—North Hempstead Town Bd., 220 Plandome Rd., imprv. water supply sys., Manhasset-Lakeville Water Dist. $620,000.

▲ **N. C., Roanoke Rapids**—City, City Hall, voted bonds Dec. 10, addni. water and sewer facilities. $1,320,000.

N. D., Jamestown—State Bd. Admin., Bismarck, water treatment plant, State Hospital. $250,000. L. W. Veigel, Dickinson, consult. engr. CD 12/18/53, under Public Buildings.

▲ **N. D., Williston**—City, water supply sys. $2,000,000. L. W. Burdick, 316 Cambridge St., Grand Forks, consult. engr.

SEWERS, WASTE DISPOSAL

Conn., West Hartford—Town, Town Hall, 1,800 ft. trunk line sewer for Braeburn School, 2,200 ft. storm sewer in Fern St. $150,000. Pasquale Martelli, Town Hall, town engr.

▲ **La., New Orleans**—City, City Hall, voted bonds Dec. 13, incinerator, $750,000; sewerage, water and drainage extensions, $1,200,000.

▲ **Mich., Detroit**—Bd. Rd. Comrs. Wayne Co., City-County Bldg., Zone 26, storm sewers and drainage facilities, Harper Woods, Grosse Pointe Woods. $5,000,000. George Jerome & Co., 1437 National Bank Bldg., Detroit, Zone 26, consult. engrs. CD 4/25/45.

Minn., Austin—City, J. H. Weiland, clk., sewage disposal plant, new plant or enlargement of existing one, $500,000, G. L. Brown, city engr.

Minn., Bloomington (P. O. Minneapolis)—Village, D. E. McCutchan, clk., defeated $150,000 bonds Dec. 6, storm and sanitary sewer projects, municipal water. F. E. Laska, village engr. CD 11/17.

Mo., Bonne Terre—City, Robert M. Blackwell, mayor, City Hall, $580,000 bond election Jan. 17, sewerage sys. imprvs., exten.

▲ **Mo., St. Louis County**—Metropolitan St. Louis Sewer Dist., William Q. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, $1,250,000 bond election Feb. 7, constr. 6 mi. trunk sewer and sanitary sewers 8 in. to 5 ft. in Maline Creek area in northwestern part of county. CD 11/15.

▲ **O., Rocky River**—City, City Hall, 19120 Detroit Rd., Cleveland, Zone 16, sewage treatment plant, $1,500,000, Floyd G. Brown & Assoc., Marion, consult. engrs. CD 4/20/54.

▲ **Utah, Orem**—City of Orem Corp., L. A. Beckman, city engr., Orem, voted bonds Nov. 8, disposal plant, sewer lines and water sys. $1,900,000. CD 10/11.

▲ **Wash., Bellevue** — Bellevue Sewer Dist., Bellevue, sewerage sys. to serv. east side of Lake Washington with trunk lines and treatment plant, $2,500,000. Carey & Kramer, 1917 1 Ave., Seattle, Zone 1, consult. engrs.

BRIDGES

▲ **NORTH CAROLINA**—State Hy. and P. Wks. Comn., Raleigh,

Cumberland Co.—grade separation, incl. 650 ft. steel, concrete viaduct, widening, ramps, paving, etc. Rowan St. in Fayetteville. $1,360,000. Wm. H. Rogers, Jr., c/o owner, state hy. engr. CD 7/23/52.

STREETS AND ROADS

Calif., Long Beach—City, City Hall, bond election Feb. 9, Long Beach Freeway Terminus. $3,000,000. CD 10/13.

Ill., Belleville—City, Mayor, City Hall, asph. resurf. 5 mi. West Main St. $400,000.

▲ **La., New Orleans**—City, City Hall, voted bonds Dec. 13, street paving and drainage, $2,900,000. CD 5/3/51.

EARTHWORK, WATERWAYS

O., Alliance—City, City Hall, enclosing Ryan's Run Creek distance of 920 ft. with 120 and 144 in. pipe, $100,000, Richard Freuler, city sanitarian.

▲ **Pennsylvania and New Jersey**—State of Pennsylvania, Harrisburg, Pa., and State of New Jersey, Trenton, N. J., Wallpack Road water supply and control dam on Delaware River, Pike Co., Pa. $70,000,000. Will seek federal aid. Financing not worked out, Albright & Friel, 121 S. Broad St., Phila., Pa., consult. engrs.

AIRPORTS

▲† **Calif., Long Beach**—AIRPORT—City, City Hall, $5,200,000 bond election Feb. 9, expanding municipal airport. CD 4/15/53.

Ky., Bowling Green — AIRPORT IMPRVS. — Bowling Green-Warren County Airport, Bowling Green, airport modernization, incl. lengthening runways. $348,500.

▲ **La., New Orleans**—AIRPORT—City, City Hall, voted $1,500,000 bonds Dec. 13, field and runway imprvs. at Moisant International Airport. CD 10/19/54.

† **Minn., Minneapolis** — RUNWAY — U. S. Eng., 1217 Post Office and Custom House, St. Paul, exten. 6,500 ft. runway to 9,000 ft., Minneapolis-St. Paul International Airport (Wold-Chamberlain Field), $580,000.

▲ **Minn., Rochester**—AIRPORT—City, F. R. Finch, clk., plans by Ellerbe & Co., E. 505 First National Bank Bldg., municipal airport, $3,000,000-$4,500,000, K. M. McGhie, Third Ave. and S.E. 14 St., consult. engrs.

▲ **N. B., Newcastle**—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S., project abandoned, 125 housing units at R.C.A.F. Base, $1,000,000. CD 6/8.

AMERICANS ABROAD

▲ **West Germany, Berlin**—HALL OF CONGRESSES—German Govt., Berlin, plans by Hugh Stubbins, 78 Mt. Auburn St., Cambridge, Mass., U. S. A., Benjamin Franklin Hall of Congresses. $3,500,000.

PUBLIC BUILDINGS

▲ **Calif., Centerville**—HOSPITAL—Washington Twp. Hospital Bd. Directors, Centerville, plans by Stone, Mulloy, Marraccini & Patterson, 619 California St., San Francisco, Washington Township Hospital addn. $1,500,000. Bond election in February. CD 11/20/52.

▲ **Calif., Long Beach**—HOSPITAL—City, City Hall, bond election Feb. 9, hospital expansion, $10,500,000. CD 4/15/53.

▲ **Calif., Long Beach**—SCHOOL—Long Beach Bd. Educ., 715 Locust Ave., plans by Hugh Gibbs, 441 E. First St., Lakewood Senior High School, Lakewood, $5,000,000.

▲ **Calif., Long Beach**—LIBRARIES—City, City Hall, bond election Feb. 9, four new branch libraries, $659,000.

▲ **Calif., Long Beach**—PUBLIC SAFETY—City, City Hall, bond election Feb. 9, public safety bldg., $4,660,000.

Calif., Los Angeles—BOYS CAMP—Los Anglese Co., Hall of Records, plans by Raphael A. Nicolais, 6239 Wilshire Blvd., Joe Scott Boys Camp, incl. dormitories, mess hall, etc. $500,000.

▲ **Calif., Oakland**—HALL OF JUSTICE—City, City Hall, Hall of Justice, incl. police dept., jail and courts. $2,000,000. City Council approved project. CD 1/27/47.

▲ **Calif., Pittsburg** — SCHOOLS — Pittsburg Unified School Dist., Pittsburg, voted $5,000,000 bonds Nov. 29, schools and schools addns., incl. new school, Park Side Elementary School, El Dorado Heights Junior High School, El Pueblo Elementary School and Heights Elementary Schools addns. CD 9/28.

▲ **Calif., Richmond**—SCHOOL—Richmond City Elementary & Richmond Union High School Dist., 1108 Bissell Ave., plans by John Carl Warnecke, 507 Howard St., San Francisco, Loring Junior High School, Loring and Rosalind Sts., $1,400,000. CD 3/26/52.

▲ **Del., Newark**—SCHOOLS—Newark Bd. Educ., Newark, plans by E. William Martin, 830 West St., Wilmington, schools $3,000,000. CD 6/23/53.

▲ **D. C., Wash.**—MUSEUM—Smithsonian Institute, 10 and Independence Ave. S. W., plans by McKim, Mead & White, 101 Park Ave., New York, N. Y., National Air Museum. $5,000,000. CD 10/26/45.

▲ **Ind., Jeffersonville**—HOSPITAL—Clark Co. Memorial Hospital, Sparks Ave., plans by Walker-Applegate-Oakes & Ritz, 218 Elsby Bldg., New Albany, 4 story, no bsmnt., 100-bed hospital addn. $1,140,000. Southern Eng. Co., Fisher Bldg., Louisville, Ky., consult. engr. CD 5/25/53.

▲ **Iowa, Ames**—DORMITORY—State Bd. Educ., State Office Bldg., Des Moines, plans by Brooks-Borg, 815 Hubbell Bldg., Des Moines, mens' dormitory at Iowa State College, $1,800,000.

▲ **Iowa, Fort Dodge**—HIGH SCHOOL—Bd. Directors, Fort Dodge, plans by Smith-Voorhees-Jensen-Silletto & Assocs., 206 Davidson Bldg., Des Moines, high school. $1,500,000. CD 2/1.

Iowa, Oakdale—PATIENT—State Bd. Regents, Des Moines, patient bldg., addns., State Sanitarium, $683,000.

Kan., Manhattan—GRAIN ELEVATOR—State, Dpt. Admin., Toepeka, plans by Dwight Brown, state archt., State House, Topeka, grain elevator and barn at Kansas State College, $207,781. CD 3/5/52.

Kan., Salina—SCHOOL—Bd. Educ., Ed. W. Mestenberg, Supt. Schools, plans by Chas. W. & John A. Shaver, 205½ S. Santa Fe St., Salina, Junior High School, $600,000-$850,000, Wilson & Co., 705 E. Crawford St., Wichita, consult. engrs.-archts. CD 8/19.

▲ **Kan., Wichita**—COURT HOUSE—Sedgwick Co., plans by Thomas, Harris & Calvin, 321 W. 2 St., court house, $7,500,000. CD 2/3/53.

▲ **La., New Orleans**—LIBRARY—City, City Hall, voted bonds Dec. 13, main library, $2,650,000.

Mass., Petersham—NOVITIATE—Sisters of the Assumption of the Blessed Virgin, 85 Boisvert St., Lowell, plans by O. E. Nault & Sons, 48 Hamilton St., Worcester, novitiate. $365,000. Bids last of this month.

Mass., Saugus—SCHOOLS—Town, Town Hall, 2 elementary schools, one Oaklandvale, Howard and Main Sts.; other Lynnhurst St. $500,000.

Mass., Sherborn—SCHOOL—Town, Bd. Educ., elementary school, $600,000.

Mass., Townsend—SCHOOL—Regional School Dist., Towns of Townsend, Pepperell, Dunstable, supt. Schools, Townsend, regional high school, $450,000.

▲ **Mich., Adrian**—SCHOOL—City, Bd. Educ., $5,373,000 bond election Feb. 16, Junior High School, $793,000; Senior High School, $4,600,000. Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, archts. CD 12/9.

Mich., Grand Rapids—SCHOOL—City, Bd. Educ., 143 Bostwick St. N. E., plans by James K. Haveman, 735 Michigan Trust Bldg., Grand Rapids, East Leonard Elementary School, $550,000.

Mich., Homer—SCHOOL—Bd. Educ., Homer Community School Dist., voted $450,000 bonds Dec. 5, school. CD 11/29.

▲ **Mich., Houghton**—DORMITORIES—State, A. N. Langius dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, ten 2 story dormitories for maried students, Michigan State College of Mining & Technology, $1,000,000. To start in spring of 1956.

▲ **Mich., Mount Clemens**—SCHOOLS—City, Bd. Educ., voted $2,500,000 bonds Dec. 12, high school, $500,000; elementary school, $450,000, W. T. Anicka & Assoc., 2300 Washtenaw St., Ann Arbor, archts. CD 11/16.

▲ **Mich., Port Huron**—CIVIC AUDITORIUM—Henry McMorran Foundation, Wm. O. Covington, atty., Port Huron, civic auditorium and sports arena, $1,200,000. CD 6/30/53, under Public Buildings.

Mich., Traverse City—SCHOOL—State, A. N. Languis dir. State Bldg. Dpt. Admin., Lewis Cass Bldg., Lansing, plans by Swanson Assoc., Inc., West Long Lake Rd., Bloomfield Hills, boys' vocational school, $500,000; giris' training school, $400,000, Traverse City State Hospital.

Mich., Ypsilanti—DORMITORIES—State, A. N. Languis dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, plans by Swanson Assoc., Inc., West Long Lake Rd., Bloomfield Hills, Women's Dormitory No. 2, $500,000; food service bldg., $350,000, Michigan State Normal School. CD 12/9.

Minn., Hawley—SCHOOL—Bd. Educ., A. Anderson, clk., $400,000 bond election Dec. 15, 2 story school addn. $440,000, Foss & Co., Moorhead, archts. CD 9/9.

Minn., Orono (P. O. Long Lake)—SCHOOL—Bd. Educ., Mrs. C. Pierson, clk., voted $490,000 bonds Dec. 6, elementary school. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 11/14.

Minn., Welcome—SCHOOL—Bd. Educ., R. Sosenberg, clk., defeated $425,000 bonds Dec. 3, school. $400,000. Haarstick, Lundgren & Assoc., N. 212 First National Bank Bldg., St. Paul, archts.

Mo., Fayette—SCHOOL—Bd. Educ., Fayette, high school, $400,000.

N. J., Trenton—INSPECTION HEADQUARTERS—N. J. Dpt. Treasury Div. of Purchases & Property, State House, plans by Frank Grad & Sons, 11 Commerce St., motor vehicle inspection headquarters $500,000.

N. J., Vineland—HIGH SCHOOL—Vineland Bd. Educ., Vineland, plans by Ralph E. Hacker, New Milford, high school addns., alterations, $600,000.

N. J., Woodlynne—SCHOOL—Woodlynne Boro, Boro Hall, plans by Edwards & Green, 17 S. 5 St., Camden, elementary school, $750,000.

▲† **N. Y., Brookhaven**—MEDICAL RESEARCH CENTER—Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash., D. C., plans by Eggers & Higgins, 100 E. 42 St., New York, Zone 17, atomic medical research center, incl. nuclear reactor and hospital, Brookhaven National Laboratory, $6,000,000. CD 12/13.

▲ **N. Y., Brooklyn**—SCHOOL—Bd. Educ., Bureau Constr., 45-12 Crescent St., Long Island City, plans by Lloyd Morgan & Eugene V. Meroni, 119 E. 40 St., New York, Zone 17, 3 story Junior High School 61, 360-424 Empire Blvd., Proj. E-745, $3,100,000.

(Continued on page 84)

Will this blot spread... or shrink?

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You pay it in the threat of crime and juvenile delinquency to your family. You pay the price in higher personal property taxes to fight the disease and crime and poverty that are slum-bred. You pay personally when the value of your home sinks as community deterioration takes another step closer.

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It's good citizenship and good business both for your firm to join efforts to check housing decay . . . to stop slums before they start. In fact, it's the *responsibility* of every business, as it is of every other good citizen, to support community improvement efforts.

Some slums are beyond repair. They should be torn down and a fresh start made. Others can be remodeled, made to conform to better living standards. So it is up to you to get behind every sound program which seeks to provide adequate housing for all our people.

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ACTION

American **C**ouncil **T**o **I**mprove **O**ur **N**eighborhoods

(Continued from page 82)

▲ **N. Y., Buffalo**—COLLEGE BLDGS.—State University of New York, State Education Bldg., Albany, expansion of Buffalo State Teachers College, 1300 Elmwood Ave., industrial and fine arts bldg., $4,350,000; health and physical education bldg., $2,350,000; home economics bldg., $1,450,000; remodeling present bldg. for science laboratories, $550,000; athletic grounds, $165,000; dormitories, $1,000,000; campus school, $2,800,000; remodeling present bldg. for more classrooms, $250,000; handicapped childrens bldg., $1,200,000. CD 9/22.

▲ **N. Y., Buffalo**—COLLEGE BLDGS.—State University of New York, State Education Bldg., Albany, college bldgs., Erie County Technical, 1685 Elmwood Ave., $6,000,000.

▲ **N. Y., Fredonia**—BUILDINGS—State University of New York, State Education Bldg., Albany, 5 addnl. bldgs. and addnl. campus space at Fredonia State Teachers College, $6,000,000. CD 9/28.

▲ **N. Y., Hempstead**—PARKING GARAGES—Village Bd., four 3 story parking garages on existing parking fields at Coopers Field, Jackson St. Field, Center St. Field and Field No. 4, $3,000,000.

N. Y., Jamestown—BUILDING—State University of New York, State Education Bldg., Albany, bldg. to house Jamestown Community College, $450,000.

▲ **N. Y., Plainview**—SCHOOL—Bd. Educ., grade school, Oak Drive, $1,166,000. Referendum vote to be held Jan. 7.

N. Y., Wantagh—SCHOOL—Bd. Educ., elementary school in Mandalay section of southwest Wantagh and elementary school in Lake Manor section of northwest Wantagh. $800,000. $40,000 bond issue approved to purchase sites.

N. D., Lisbon—ARMORY—Bismarck and City of Lisbon, City voted $40,000 bonds Nov. 25, armory for North Dakota National Guard, $184,000. Johnson & Lightowler & Assocs., 5 N. 14 St., Fargo, archts. CD 7/19.

▲ **N. D., Minot**—BUILDING PROGRAM—State Bd. Higher Educ., Bismarck, library; Harrison School; women's dormitory; men's dormitory; married students dormitory; faculty housing. $1,765,000.

N. D., Tioga—HIGH SCHOOL—Bd. Educ. plans by Brunner, Hoeffel & Bohrer, Minot, high school. $575,500

▲ **O., Akron**—SCHOOLS—Bd. Educ., Martin Essex, supt., 70 N. Broadway, plans by Trefon Sagadencky, Cuyahoga Falls, southeast side elementary school, $400,000-$500,000; northwest elementary school, $900,000. Edwin F. Bliss, school archt. CD 11/22.

▲ **O., Athens**—PHYSICAL EDUCATION PLANT—Ohio University, Athens, physical education plant, Total est. $2,500,000. first unit $350,000 planned for next year.

▲ **Pa., Saratoga**—SCHOOL—Lower Upper & West Pottsgrove Twp. Joint School Bd., Saratoga, plans by Buchart Eng. Corp., 920 Columbia Ave., Lancaster, Junior-Senior High School, Rte. 466, Upper Pottsgrove Twp. $1,800,000. Bids early in 1956.

▲ **Pa., Unity**—SCHOOL—School Dist. of Plum Twp., Unity, plans by Enos Cooke, 316 Charles St., New Kensington, steel, brick, Senior High School. $1,500,000. To go ahead in 1956.

▲ **Tenn., Knoxville**—ARMORY-FIELDHOUSE—University of Tennessee, Knoxville, plans by Selmon T. Franklin, 421 Poplar St., Chattanooga, armory-fieldhouse. 3200-8000 seating capacity. $1,000,000. CD 1/16/53.

Tex., Austin—LABORATORY—State Hy. Dpt., Austin, 35,000 sq. ft. laboratory bldg. at Camp Hubbard. $350,000.

Tex., Rockport—HIGH SCHOOL—Arkansas County Independent School Dist., Rockport, voted bonds Dec. 3, Junior High School, gymnasium, $350,000; elementary school units, $350,000. CD 11/22.

▲ **Tex., San Antonio**—POWER PLANT, etc.—City P. Service Bd., Villita St., Mission Road Power Plant addn., 100,000-kw steam turbine unit installed, $12,000,000; power transmission lines in vicinity Mission Road Power Plant, $250,000; Ball Park Electric Power Sub-station expansion and imprvs. $562,000; electric power transmission lines in vicinity Ball Park Substation, $275,000; grounds preparation, grading, filling, leveling, etc. for Ball Park Sub-station and Mission Road Power Plants, $75,000.

▲ **Wis., Oshkosh**—HIGH SCHOOL—Bd. Educ., plans by Perkins & Will, 309 W. Jackson St., Chicago, Ill., high school. $4,900,000. CD 8/21/51.

▲ **Ont., Guelph**—COLLEGE—Ontario Agricultural College, Toronto, plans by W. R. Souter & Assocs., 36 James St. S., Hamilton, 3 story, T-shaped college bldg., southeast side of College Lake, $1,000,000.

Ont., Hamilton—EMPLOYMENT SERVICE—Dpt. P. Wks., Hunter Bldg., Ottawa, plans by E. A. Gardner, c/o owner, women's division employment service bldg. $500,000.

Ont., Toronto—APARTMENTS—City, City Hall, plans by Jackson & Ypes, 5453 A Yonge St., Willowdale, apartments for elderly persons, Sherbourne St. $950,000. CD 1/28/48.

▲ **Ont., Toronto**—CITY HALL—City, City Hall, indefinitely deferred, rejected project new city hall. $18,000,000. CD 11/30/54.

COMMERCIAL BUILDINGS

▲ **Calif., La Habra**—DWELLINGS—Casa Rancho Bldg. Co., Box 173, Whittier, plans by L. C. Major & Assoc., 11015 S. Paramount Blvd., Downey, 177 frame, stucco dwellings, Tract 2745. $1,750,000.

▲ **Calif., Novato**—SHOPPING CENTER—Taper & Hoyt, 2204 MacDonald St., Richmond, shopping Center, 22-acre site, incl. supermarket, professional bldg. and retail units, Novato Plaza. $5,000,000.

▲ **Calif., Redondo Beach**—DEPARTMENT STORE—May Department Stores Co., Railway Exchange Bldg., 611 Olive St., St. Louis, Mo., 340,000 sq. ft. department store and adjacent parking areas, $1,000,000.

▲ **Calif., San Bernardino**—OFFICE, etc.—California Electric Power Co., 3771 W. 8 St., Riverside, plans by Austin, Field & Fry, 2311 W. 3 St., Los Angeles, office and service center $2,500,000.

▲ **Calif., Santa Clara**—SUPERMARKET, etc.—Capitol Co., 1 Powell St., San Francisco, and Beckett & Federigh, 1441 Franklin St., Oakland, supermarket and small stores, Mariposa Garden Shopping Center, $1,000,000.

▲ **Calif., Santa Cruz**—SHOPPING CENTER—Ernest H. Renzel, 255 Basset St., San Jose, shopping center, $1,000,000.

▲ **Calif., Vallejo**—HOME SUB-DIVISION—Van Ness Constr. Co., 5055 Dublin Ave., Oakland, plans by Lillis & Smith, 912 Tennessee St., 75-home subdivision, $1,012,500.

▲ **Colo., Denver**—DORMITORY—Loretto Heights College, 3001 S. Federal Blvd., Denver, 4 story, 50,000 sq. ft. dormitory, $1,000,000. John K. Monroe, Security Life Bldg., Denver, consult. engr.

▲ **Conn., Bloomfield**—HOUSING—Green Acres, Inc., 2690 Albany Ave., West Hartford, plans by Irving W. Rutherford, 49 Garden St., Hartford, housing development on Wintonbury Ave. $10,500,000. Sanderson & Washburn, 866 Park Ave., consult. engrs.

▲ **D. C., Wash.**—OFFICES, etc.—National Education Assoc., 1201 16 St. N. W., Wash., D. C., plans by Joseph Saunders, 1757 K St. N.W., Stage III NEA bldg., incl. offices, auditorium, etc. $2,500,000. Bids in Spring. CD 12/23/52.

Fla., West Palm Beach — SANCTUARY, etc. — Union Congregational Church, West Palm Beach, plans by Frederick Dunn, 1218 Olive St., St. Louis 3, Mo., second church section, incl. sanctuary, educational facilities, etc. $350,000. James Barowski, Palm Beach, consult. engr.

▲ **Ill., Belleville**—HOME FOR AGED—Meredith Memorial Home, c/o Most Rev. Albert R. Zuroweste, Bishop of Belleville, 222 S. 3 St., Belleville, and Mercantile Trust Co., 8 and Locust Sts., St. Louis 1, Mo. trustees, home for aged. $1,000,000.

Ill., Norridge—CHURCH—Parish of Divine Savior, Montrose and Ozanam Sts., plans by Gaul & Voosen, 228 E. Superior St., Chicago, Zone 11, church, convent and school. $425,000.

▲ **Ill., Park Ridge**—COLLEGE—Hebrew Theological College, 344 W. Douglas Sts., Chicago, plans by Isadore Braun, 173 W. Madison St., Chicago, college and dormitory bldgs. $2,000,000.

▲ **Md., Langley Park**—MEDICAL CENTER—William and Charles Cohen, 1245 1st. St. S. E., Wash., D. C., plans by Richard E. Collins, Glenmont Rd., Silver Spring, medical center, New Hampshire Ave. near University Lane. $1,500,000.

▲ **Mass., Holyoke**—HOSPITAL—Providence Hospital, 679 Dwight St., plans by Eggers & Higgins, 100 E. 42 St., New York, Zone 17, 7 story hospital addn., $4,500,000. CD 11/3/54.

▲ **Mich., Southfield**—OFFICE—Allstate Insurance Co., 1214 Griswold St., Detroit, Zone 26, plans by Victor Gruen Assoc., Inc., 1905 Industrial Bank Bldg., Detroit, Zone 26, 2 story, brick, stone, 65,000 sq. ft. regional office, $1,000,000.

Minn., Minneapolis—ADMINISTRATION—Lutheran Welfare Society of Minnesota, c/o J. R. Winsor, fund campaign chn., 2110 First Ave. S., welfare administration bldg., Park Ave. $425,000.

▲ **Mo., Joplin**—SHOPPING CENTER—E. C. Rhoden Enterprises, 3719 Broadway, Kansas City, Mo., shopping center, $1,000,000.

Mo., Richmond Heights (St. Louis 17 P.O.)—CHURCH—Second Baptist Church, Rev. Leon R. Robinson, 9030 Clayton Rd., Zone 17, plans by Frederick Dunn, 1218 Olive St., St. Louis, Zone 3, church, educational bldg., Clayton and McKnight Rds. $350,000. (Location-changed). CD 8/23/54, under Mo., Ladue.

▲ **Mo., St. Louis**—SCIENCE, etc.—St. Louis University, Very Rev. Paul C. Reinert, pres., 221 N. Grand Blvd., Zone 3, science bldg. on north campus for biology and chemistry classes, $2,000,000; arts bldg. for College of Arts & Sciences, $2,000,000; Institute of Technology Bldg., $2,500,000. CD 8/20/54.

Neb., Omaha—OFFICE, SHOP—Seller Surgical Supply Co., 111 S. 17 St., plans by Vahlberg-Palmer-Vahlberg, 1323½ N. Robinson St., Oklahoma City, Okla. office and shop. $350,000.

▲ **Nev., Reno**—HOTEL—Hacienda Motels, Inc., c/o Secy.-Treas. 251 S. Union Ave., Bakersfield, Calif. 226-room hotel. $5,000,000.

N. J., Atlantic City—HOTEL—Hykern Corp., Att. A. Hyman, New Jersey Ave. at Boardwalk, plans by J. Vaugh Mathis, Guarantee Trust Bldg., St. Charles Hotel addn. $344,000.

▲ **N. J., Camden**—OFFICE, etc.—Campbell Soup Co., 100 Market St., plans by Alexander D. Crossett & Assoc., 27 William St., New York, N. Y., office bldg. and research center, $1,000,000.

N. J., Lavalette — MOTEL — Owner, c/o Elmer B. Torrance, archt., Brielle, motel, $344,000.

▲ **N. Y., Buffalo**—HOSPITAL—Kenmore Mercy Hospital, 950 Elmwood Ave., two new hospital wings, $2,000,000. Construction next spring.

▲ **N. Y., New York**—APARTMENT—Stanley R. Broff, 120 Central Park South, Zone 19, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 20 story apartment, 10-16 East End Ave. and 536-44 E. 80 St., $2,500,000.

▲ **N. Y., New York**—SCHOOL—Cooper Union, 4th Ave. and 7th St., bldg. to house School of Engineering on Astor Place, $1,000,000.

N. Y., New York—APARTMENT—Peter Doelger, Inc., 407 E. 55 St., Zone 22, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 12 story apartment, 155-59 E. 50 St. $660,000. To go ahead in Spring.

▲ **N. Y., New York**—APARTMENT—J. L. N. Realty Corp., 342 Madison Ave., Zone 17, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 19 story apartment, Third Ave. and 38 St., $1,000,000.

N. Y., New York—OFFICE—Land Properties, Inc., 1841 Broadway, Zone 23, plans by Siegel & Green, 1841 Broadway, Zone 23, office alterations, $500,000.

▲ **N. Y., New York**—HOUSING—Rockefeller Institute for Medical Research, Sloan-Kettering Institute and Memorial Center for Cancer & Allied Diseases, York Ave. and 66 St., middle income housing, 256 units, one 15 story bldg., one 16 story bldg., on site bounded by First Ave., York Ave. E 66 St. and E. 67 St. $5,205,000.

N. Y., Syracuse—OFFICE—National Grange Insurance Co., Keene, N. H., plans by Cram & Ferguson, 248 Boylston St., Boston, Mass., 3 story, 100x300 ft. office, James and Catherine Sts., $600,000-$700,000.

N. Y., Yonkers—APARTMENT—Armino A. Campagna, 200 W. 72 St., New York, Zone 23, 6 story apartment, 422-434 Warburton Ave. $600,000. To go ahead in Summer of 1956.

N. D., Fargo—HOME FOR AGED—Lutheran Hospitals & Homes Society, 114 Roberts St., home for aged. $500,000.

▲ **O., Avon Lake**—HOMES—D & R Constr. & Realty Co., 4575 Pearl Rd., Cleveland, Zone 9, plans by Michael M. Kane, 12381 Cedar Rd., Cleveland, Zone 6, 360 homes 190-acre site between Lake and Walker Rds., east of Curtis Dr. $7,200,000.

▲ **O., Cleveland**—HOMES—Feiner Homes, Inc., 18310 Harvard Ave., Zone 22, plans by Richard Mumper, 2891 Green Rd., Zone 22, 110 homes. $2,000,000. Will build early next year.

▲ **Pa., Bala Cynwyd**—OFFICE—Bocon Corp., 1515 Locust St., Phila., plans by George M. Ewing Co., Western Savings Fund Bldg., Phila., office-city line, $3,000,000.

▲ **Pa., Leetsdale**—SHOPPING PLAZA—Boulevard Shopping Plaza, 1116 Merchant St., Ambridge, brick, block shopping plaza and parking area, $2,000,000. To go ahead in 1956.

▲ **Pa., Phila.**—HOSPITAL—Chestnut Hill Hospital, 8835 Germantown Ave., hospital expansion, $1,500,000.

Pa., Sharon—STORE—J. M. Willson & Sons, 98 E. State St., furniture store, $800,000.

Pa., Somerset—MOTEL—R. A. Gilmour, Somerset, and R. M. Smith, First National Bank Bldg., Johnstown, plans by Kenneth F. Weimer, 229 Washington Ave., Clarksburg, W. Va., 2 story, bsmnt., 180x300 ft., brick block motel 90 units and office and restaurant, $350,000.

R. I., Westerly—CHURCH—St. Pius X R. C. Church, c/o Bishop of Providence, 30 Fenner St., Providence, plans by Joseph M. Mosher & Son, Inc., 77 Washington St., Providence, church, Elm St. $350,000.

▲ **Tex., Baytown**—DWELLINGS—W. D. Laird, 311 Frawley St., Houston, 28 dwellings, $347,200; 32 dwellings, $366,405; 41 dwellings, $390,725; 30 dwellings, $356,240; 35 dwellings, $376,000; 38 dwellings, $381,500, 181½ acres off Decker Rd.

Tex., Bryan—CHURCH—First Presbyterian Church, Bryan, plans by Henry J. Steimbomer, 8118 Broadway, San Antonio, and Henry D. Mayfield, Jr., 405 Varisco Bldg., church. $465,000. J. W. Hall, Jr., Bryan, consult. engr.

▲ **Tex., Clute**—DWELLINGS—R. Clyne Thomas & Francis M. Shanks, Jr., Developers, 214 brick veneer dwellings, $2,140,000; 40 brick dwellings (1st part of Unit 1), $420,000; 46 brick dwellings (2nd and last part of Unit 1) $460,000.

▲ **Tex., Corpus Christi**—OFFICE—Colonial American Life Insurance Co., 526 Water St., plans by Kuehne, Brooks & Barr, Perry-Brooks Bldg., Austin, 11 story, 78,000 sq. ft. masonry office and auto parking. $1,500,000.

Tex., El Campo—HIGH SCHOOL—Catholic Schools, c/o Archbishop Robert E. Lucey, 230 Dwyer Ave., San Antonio, high school. $350,000.

Tex., Fort Worth—CONVENT CHAPEL—St. Josephs Hospital, 1400 Main St., plans by Joseph R. Pelich, 1203 Comm. Std. Bldg., brick, tile, concrete, steel convent and chapel at hospital. $500.000. Bids in January, 1956.

▲ **Tex., Fort Worth**—SANCTUARY—St. Stephen Presbyterian Church, 2600 Sandage St., plans by Wilson, Patterson & Assocs., 601 Bailey St., sanctuary. $1,500,000.

▲ **Tex., Houston**—OFFICE—T. J. Bettes Co., 616 Fannin St., plans by Wilson, Morris & Crain, 3330 Graustark St., 200,000 sq. ft. office, Holcombe Blvd. and Old Main St. $1,000,000. Robert J. Cummins, Bankers Mortgage Bldg. and Dale S. Cooper & Assocs., 3815 Garrott St., consult. engrs.

▲ **Tex., Houston**—HOMES—Wm. H. Craig, c/o Craig Realty Co., 4510 Elm St., 68-frame, brick home addn., Gessner Rd. $1,020,000.

Tex., Houston—DWELLINGS—M. Louis Bernell, 9501 Chocolate Bayou, 34 dwellings, $347,410.

▲ **Tex., Houston**—DWELLINGS—Glenn Constr. Co., c/o A. G. Draper, 7624 Vista Verde St., plans by Crochet & Carroll, 4574 Griggs St., 31 dwellings, $350,000; 33 dwellings, $365,000; 36 dwellings, $373,500 in Glenbrook Valley Addn.

Tex., San Antonio—DWELLINGS—Bell Building Co., c/o Campo Gardens, 45 frame dwellings, $350,000.

▲ **Wash., Bellevue**—HOSPITAL—Overlake Memorial Hospital Assn., Bellevue, plans by Naramore. Bain, Brady & Johanson, 904 7 Ave., Seattle, hospital, $1,000,000. CD 2/3/54.

▲ **Wash., Bellevue**—BUSINESS CENTER—Overlake Park Associates, c/o V. Rabel, 1833 Parkside Dr., Seattle, plans by Welton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., business center east of here, $20,000,000.

▲ **Wash., Redmond**—SHOPPING and RECREATION CENTER— Main Gate Development Co., c/o Johnston Campanella, archts., Orpheum Bldg., Seattle 1, Wash., shopping and recreation center, $40,000,000.

Wis., Madison—Y.M.C.A. BLDG.—Young Men's Christian Assn., 207 W. Washington Ave., remodeling Y.M.C.A. bldg., $400,000.

Alta., Banff—HOSPITAL—Sisters of St. Martha, c/o Meech, Mitchell, Robina & Assocs., archts. and consult. engrs., 40-bed hospital, $500,000. CD 11/21/44.

▲ **Alta., Calgary**—OFFICE—Canadian Western Natural Gas Co. Ltd., 6 Ave., plans by J. Stevenson & Assocs., 340 7 Ave. W., office addn., 6 Ave and 1 St. W. $1,500,000.

▲ **Alta., Calgary**—OFFICE—Tankoos Yarmon, Ltd., 320 Bay St., Toronto, Ont., plans by Stevenson & Dewar, 240 Seventh Ave. W., Calgary, 10 story, 100x130 ft. office, $2,500,000.

Alta., Edmonton — OFFICE — International Harvester Co. of Canada Ltd., 200 Hillyard Ave., Hamilton, Ont., plans by Kyles & Kyles, 247 John St. S., Hamilton, Ont., 1 story, concrete block, steel, poured concrete office, incl. showroom, administrative offices, $600,000.

▲ **Man., Winnipeg**—SHOPPING CENTER—Polo Park Shopping Center, c/o David Slater Ltd., 806 Childs Bldg., plans by Green, Blankstein & Russell, 222 Osborne St., shopping center, incl. 50 stores and department store, 78-acre site at Polo Park. Over $6,000,000.

Ont., Hamilton—OFFICE—International Harvester Co. of Canada Ltd., Hillyard Ave., plans by Kyles & Kyles, 247 John St. S., 1 story, 151x415 ft., steel, concrete block office, $700,000.

▲ **Ont., London**—SHOPPING CENTER—Principal Investments Ltd., 133 Richmond St. W., Toronto, shopping center, Dunday St. $5,000,000.

Ont., Toronto—APARTMENTS—Winston Park Development, Ltd., 843 Wilson Ave., plans by Murray Sklar, 159 Bay St., low rental apartments, each bldg. 4 story, 204 suites in several bldgs., masonry contr. $850,000. CD 6/18/53.

▲ **Que., Montreal** — HOUSING — Milner, Inc., 2699 Rachel St. E., 100-unit housing, Bois Franc Rd. $1,500,000.

▲ **Que., St. Foy**—SHOPPING CENTER—Ivanhoe Corp., c/o Steinbergs Wholesale Groceterias, Ltd., 5400 Hochelaga St., Montreal, shopping center, on former Gringras farm, $4,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Huntsville**—MANUFACTURING PLANT—American Machine & Foundry Co., 261 Madison Ave., New York, N. Y., gigantic underground mfg. plant near Redstone Arsenal. $40,000,000. Mason & Hanger Co., Inc., and Silas Mason Co., Inc., both 500 5 Ave., New York, N. Y., consult. engrs.-archts.

Ala., Opelika—PLANT—Opelika Mfg. Co., Opelika, plans by Robert & Co. Assocs., 96 Poplar St. N.W., Atlanta, new linen goods plant, $500,000.

▲ **Ariz., Drake**—PLANT—Republic Cement Co., Berney C. Prigg, pres., Valley National Bank Bldg., Prescott, 3,250 bbl. per day cement plant. $6,500,000.

▲ **Calif., Long Beach**—PLANT—Douglas Aircraft Co., 3000 Ocean Park, Santa Monica, plant expansion, incl. two 1,250,000 sq. ft. factory buildings. $15,000,000-$20,000,000. Holmes & Narver, Inc., 828 S. Figueroa St., Los Angeles, consult. engr.-archts.

▲ **Calif., Oxnard**—STEAM GENERATING STATION—Southern California Edison Co., 601 W. 5 St., Los Angeles, Zone 53, steam generating station near here, Ventura Co. $35,000,000 (Ultimate $75,000,000).

▲ **Colo., Denver**—PLANT—Glen L. Martin Co., 1845 Sherman St., Denver, and Eastern Ave., Middle River 3, Md., 1 story, 500,000 sq. ft., steel, brick, concrete guided missile plant. $5,000,000. Smith, Hinchman & Grylls, Inc., Guardian Bldg., Detroit 26, Mich., consult. engr. CD 12/2.

Conn., Stamford — FACTORY — Pitney-Bowes, Inc., 560 Whalley Ave., New Haven, plans by Caproni Assocs., Inc., 1221 Chapel St., New Haven, factory. $2,000,000. CD 6/1.

Darex Diary

No. 8 of a series

by Henry L. Kennedy

Member, American Concrete Institute

Manager, Construction Products

Dewey & Almy Chemical Company

**** Reasons for the rapid growth of ready-mix plants***

**** "The Technology of Cement and Concrete"***

IN 1951, about 38 million cubic yards of ready-mix concrete were poured in this country. By 1954, this figure had grown to almost 62 million cubic yards. Even though we are in the middle of a very healthy construction market, this is a tremendous increase; and it must have been brought about largely by the *quality of the services provided* by the many hundreds of plants producing ready-mix concrete. The fact becomes evident when you compare the increase in ready-mix concrete with other industry figures.

From 1951 to 1954, the production of portland cement increased about 11 percent. Total new construction showed a gain from 1951 to 1954 of approximately 20 percent. In this same period, ready-mix plant sales went up more than 60 percent. Moreover, this increase has not been confined to just these past three years. In the ten years since 1945, when 10 million cubic yards of commercial ready-mix were poured, the industry has grown more than 500 percent.

All of us in the Construction Specialties Division of Dewey and Almy spend a large part of our time visiting ready-mix plants; and anyone making such calls soon senses the feeling of "pride in product quality" which is predominant throughout the ready-mix industry. This pride of workmanship, plus the skills which grow with specialization and the inspiring work of Stanton Walker of the Ready-Mix Concrete Association, has resulted in a trend toward higher quality concrete. Apparently this has brought about wide acceptance of ready-mix plants as a source of concrete that will satisfy the varied specifications under which engineers and contractors are building.

Convenience, too, with its resulting economies, must have played an important part in the contractors' switch from on-the-site mixing to the use of ready-mix concrete. For, whether the job is large or small, the contractor can simply pick up his telephone and call his ready-mix supplier for any type of concrete that is needed.

Dewey and Almy has been very happy to see this great growth in the ready-mix industry. It is well deserved, for the reason that the majority of ready-mix plants are making an important contribution in quality and in service. More selfishly, these plants have become a very important market for Dewey and Almy products. A recent survey, made by a well-known magazine, showed that 100% of the concrete produced by well over half of the ready-mix operators contacted is air entrained concrete. The same survey showed a very gratifying preference for DAREX AEA, which was preferred over other air entraining agents by something like 5 to 1.

* * * * * * * *

The products of the Construction Specialties Division of Dewey and Almy are used by cement mills, ready-mix plants and contractors. This has given us such a broad perspective of the entire industry, from the grinding of the clinker right through to the completed construction jobs, that we could write a book.

And that's just what we've done. I have had the pleasure recently of coauthoring with Robert F. Blanks, Vice President and General Manager of Great Western Aggregates, a new two-volume book series entitled "The Technology of Cement and Concrete". The first volume, "Concrete Materials", was published in September by John Wiley & Sons of New York. It brings together all of the important journal literature on concrete materials and presents much data that have never before been available. A second volume, now being edited, will concentrate on "Concrete." Volume I is now available from the publishers or, in many localities, can be referred to in your public library.

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OWEN--

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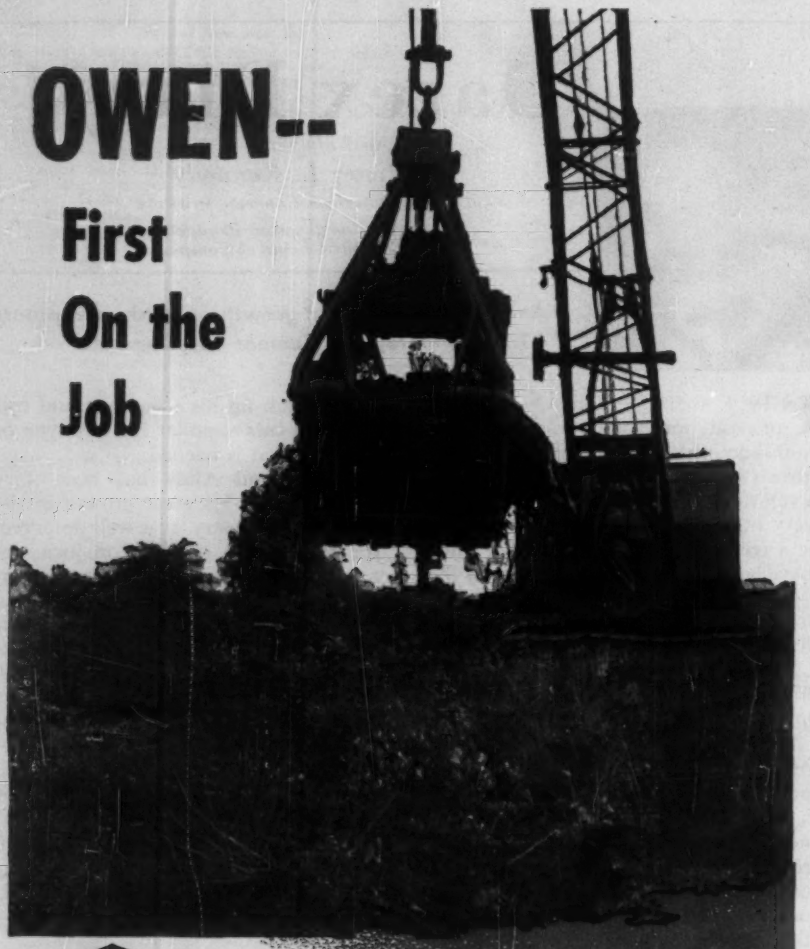

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▲ **Ga., Hartwell**—PLANT—Monroe Auto Equipment Co., Monroe, Mich., auto products plant. $2,000,000. CD 2/14/50.

▲ **Idaho, Kellogg**—PLANT EXPANSION—Bunker Hill & Sullivan Mining & Concentrating Co., Kellogg, zinc plant expansion. $7,000,000.

▲ **Ill., Chicago**—PLANT—Automatic Electric Co., 1031 W. Van Buren St., Zone 7, telephone equip. and electric components mfg. PLANT, incl. laboratory, office, railroad siding, $16,000,000.

Iowa, Glidden—GRAIN ELEVATOR—Farmers Co-operative Elevator Co., Glidden, grain elevator. $200,000.

Iowa, Mason City—PLANT—Lehigh Portland Cement Co., Young Bldg., Allentown, Pa., 1 million bbl. cement mfg. plant addn. $500,000.

Iowa, Sioux City—PLANT—Gates Rubber Co., 999 S. Broadway, Denver, Colo., mfg. plant. $100,000.

Iowa, Sioux City—FEED MILL—Ralston Purina Co., 835 S. 8 St., St. Louis, Mo., feed mill $500,000.

▲ **La., Chalmette**—PLANT—Kaiser Aluminum & Chemical Corp., Box 1600, (1) D.C. casting facilities (2) cryolite recovery plant (3) administration bldg. $1,000,000.

▲ **La., Gramercy**—PLANT—Kaiser Aluminum & Chemical Corp., 1924 Broadway, Oakland, Calif., aluminum plant. $60,000,000.

Mo., Marshall—GRAIN ELEVATOR—M F A Central Co-operative, Marshall, grain elevator addn. $125,000.

N. Y., New York—GARAGE—Dorothy Siesinger, c/o Siegel & Green, 1841 Broadway, Zone 23, garage alterations, 327 W. 37 St. and 310 W. 38 St., $100,000.

▲ **N. Y., Port Jefferson** — GENERATOR UNIT — Long Island Lighting Co., 250 Old Country Rd., Mineola, Generator Unit No. 3, near existing units. $30,000,000.

▲ **O., Cincinnati**—WAREHOUSE, etc.—General Motors Corp., General Motors Bldg., Detroit, Mich. plans by Allen & Kelley, Architects & Builders Bldg., Indianapolis, Ind., approx. 88,200 sq. ft. parts warehouse, 15,000 sq. ft. zone sales office, 1 story, brick constr. $1,000,000.

▲ **O., Columbus**—WAREHOUSE—Jones & Laughlin Steel Co., 50 W. Broad St., warehouse. $1,000,000.

O., Dayton—FACTORY—Reynolds & Reynolds Co., Germantown Rd., plans by Yount & Sullivan, Third National Bank Bldg., 3 story, 24,000 sq. ft. factory addn. west end of plant. $150,000.

▲ **O., Evendale**—PLANT—Formica Co., 4620 Spring Grove St., Cincinnati, 76,800 sq. ft. plant addn. $21,200,000. A. M. Kinney, Inc., 2905 Veronica Pl., Cincinnati, consult. engr.

▲ **O., Olmsted Falls** — PLANT — Dairypak, Inc., 5020 Brookpark Rd., Cleveland, Zone 29, plans by Wyatt C. Hedrick, engr.-archt., T & P Bldg., Fort Worth, Tex., 1 story, concrete, 125,000 sq. ft. plant on 71 acre site on Division St. north of N.Y.C. R.R. tracks. $1,000,000. Construction about Mar. 1.

▲ **Pa., Pittsburgh** — PLANT — Rieck Dairy Co., 1345 Forbes St., plans by Hunting Larsen & Dunnells, Inc., Century Bldg., 1, 2 and 3 story, 250x250 ft., steel, milk plant, garage repairs dpt. $2,500,000. CD 2/16/55.

▲ **R. I., Ashton** — PLANT — Owens Corning Fiberglas Corp., Ashton, plant to mfg. glass marbles for textile mfg. $1,000,000.

▲ **R. I., Tiverton**—REFINERY—Paragon Oil Co., 2100 Hunter Pint Ave., Long Island City, N. Y., refinery fuel oil, gasoline, aircraft gasoline and jet fuels. $38,000,000. To go ahead in 1956.

▲ **Tenn., Alcoa**—ROLLING MILL—Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa., install new rolling mill. $4,000,000. CD 12/27/51.

Tenn., Nashville—PLANT—Victor Chemical Works, Centennial Blvd., chemical plant. $150,000.

▲ **W. Va., Moundsville**—GENERATING PLANT—Cresap Generating Corp., (Olin-Mathieson Chemical Corp.), 460 Park Ave., New York, N. Y., generating plant to supply power for new aluminum plant, at Cresap, near here. $31,500,000. Work to start in Spring.

▲ **W. Va., Moundsville** — ALUMINUM PLANT — Olin-Mathieson Chemical Corp., 460 Park Ave., New York, N. Y., aluminum plant at Cresap, near here. $74,000,000. Work to start in Spring.

▲ **B. C., Port Alice**—PLANT MODERNIZATION, etc.—Alaska Pine & Cellulose Ltd., 1111 W. Georgia St., Vancouver, plant expansion, modernization, incl. pulp drying machine, finishing room new boiler. $6,000,000. Sandwell & Co. Ltd., 1500 W. Georgia St., Vancouver, consult. engrs.

UNCLASSIFIED

▲ **Calif., Long Beach**—PARK, etc.—City, City Hall, bond election Feb. 9, park and recreation imprvs. $4,900,000. CD 4/15/53.

▲ **Louisiana, Arkansas, Mississippi, Tennessee, Kentucky and Indiana**—GAS PIPE LINE—Texas Gas Transmission Corp., 401 W. 3 St., Owensboro, Ky., increasing capacity of natural gas pipe line system and constr. 105 mi. new line between East Lake Palourde Field, Assumption Parish and Eunice, La., etc. $19,969,000.

▲ **Texas, Louisiana, Mississippi**—GAS LINE—Offshore Gathering Corp., c/o David C. Bintliff, 812 Rusk St., Houston, Tex., 364 mi. 30 in. gas line from vicinity Sabine, Tex. to coast line of Mississippi, $75,000,000; 364 mi. 20 in. crude oil under-water line, from vicinity Sabine to coast line of Mississippi, $75,000,000 (under water project running 25 mi. offshore, from 30 to 60 ft. deep under water).

8-year old WROUGHT IRON PIPE SNOW MELTING SYSTEM still performing WINTER MAGIC

Giving winter snows the "hot foot" is an old story for The Protane Corporation, Erie, Pa.

Their snow melting system dates back to 1947 when a network of wrought iron pipe grids, 12-feet wide and 51-feet long, was installed under the sidewalk in front of their LP-Gas service building.

How efficiently the system has worked since installation is shown in the above photographs which were taken after a four-inch snowfall. The picture at the left illustrates the melting in process. Here, a hot water and antifreeze solution, flowing through the embedded pipes, is clearing the snow. Note that there is no run-off water. The snow melts, and quickly evaporates. In the picture at the right, taken 40 minutes later, all the snow has disappeared and the sidewalk is virtually free of moisture.

Starting the system is a simple matter. A push of a single button (see insert photo above) activates a high velocity pump and hot water is circulated through the wrought iron pipe system.

The Protane Corporation is gratified with the efficiency of this automatic "winter magic." But the real record, as far as they're concerned, is the trouble-free operation. "Eight years without maintenance, and the system is still going strong," is their report.

There are good reasons for the dependable, trouble-free service of wrought iron pipe in snow melting systems. You'll find complete information on why wrought iron lasts long, at lower cost per year, in our bulletin, *Byers Wrought Iron Pipe for Snow Melting Systems.* Write for a copy.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **N. H., Portsmouth**—ROADS, etc.—BA 1/3—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., roads, utilities, paved storage parking areas and railroad, Portsmouth Air Force Base. ENG 19-016-56-78. $500,000-$600,000. Plans deposit $10. Tracy & Hildreth, 4 Davis Court, Nashua, archts. CD 12/9.

† **N. H., Portsmouth**—HEADQUARTERS BLDG.—BA 1/5—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., wing headquarters bldg., four squadron headquarters bldgs., guard house, commissary clothing bldg., library and chapel modification, Portsmouth Air Force Base, ENG 19-016-56-38. Est. $600,000-$700,000. Plans deposit $20. Desmond & Lord, 6 Beacon St., Boston, Mass., archts. CD 12/9.

▲† **Mass., Chicopee Falls**—DORMITORIES—BA 1/11—U. S. Eng., 857 Commonwealth Ave., Boston, airmen's dormitories, communications transmitter, power and receiver bldgs., addns. to reconnaissance technical lab. and communications and phone bldg., flood lighting for alert hangar apron, Westover Air Force Base, Eng. 19-016-56-79, $1,500,000, Plans deposit $50. McClintock & Craig, Inc., 458 Bridge St., Springfield, and Cram & Ferguson, 248 Boylston St., Boston, archts. CD 12/12.

† **Me., Bangor**—QUARTERS—BA On Or About 1/18—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., bachelor officers' quarters, officers' club, N. C. O. club, Dow Air Force Base, ENG-19-016-56-70, $700,000-$800,000. Plans deposit $30 refundable. Crowell, Lancaster & Higgins, Pedersen & Tilney, 6 State St., Bangor, archts. CD 12/5.

BUILDINGS—BA

Mass., Boston—SCHOOL—BA 1/11—City, Dpt. School Bldgs., 26 Norman St., Elirich Smith School site, Centre St., Mary Hemenway District, $462,000. Plans deposit $100 refundable. Isidor, Richmond & Carney, Goldberg, 16 Arlington St., Boston, archts. CD 12/6/55.

Mass., Sterling—SCHOOL—BA 1/18—Town, Town Office, Library Bldg., elementary school, $412,000. Plans deposit $150. Perley F. Gilbert & Assoc., Inc., 8 Merrimack St., Lowell, archt. Bids 9/14 rejected. CD 9/21, under LB.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Gilbane Building Co., 90 Calverley St., Providence, R. I. LB $533,910. est. $390,000. Westville Bridge, Southbridge and Sturbridge, Bids Dec. 14. CD 12/7.

† **Theodore Loranger & Sons, Inc.**, 404 Nash Rd., New Bedford, Mass. LB $547,900, est. $550,000. bombing targets, No Man's Land Island, NOY 90981, Spec. 48707, MASSACHUSETTS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Dec. 16. CD 11/30.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass., rejected bids Oct. 18, addnl. bulk storage, Westover Air Force Base, ENG-19-016-56-23, CHICOPEE FALLS, MASS. CD 10/24, under LB.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass. rejected bids Oct. 18, runway, wid'n., airfield approach taxiway lighting, Otis Air Force Base, ENG-19-016-56-22, FALMOUTH, MASS. CD 10/24, under LB.

RHODE ISLAND—State of R. I. & Prov. Plantations, Div. Purchase, State House, Providence,

Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., CA $990,594, est. $990,000, grading, drainage, Louisquisset Pike-Branch Ave. to Olney Pond Station, Bid No. 368. R. I. Contr. 5524. F.A. Proj. V-035 (3), Providence, North Providence and Lincoln. Bids Nov. 23. CD 11/30, under LB.

† **National Constr. Co.**, 767 E. 3rd St., South Boston, Mass., CA $79,539, facilities at New Salem, Mass. ENG-19-016-56-16. CONNECTICUT and MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Nov. 22. CD 11/30, under LB.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass. rejected bids Nov. 22, facilities at Middletown, Conn., ENG-19-016-56-16. CONNECTICUT and MASSACHUSETTS. CD 11/30, under LB.

BUILDINGS—LB & CA

C. Profenno Co., 127 Marginal Way, Portland, Me. CA $636,500. est. $600,000. GYMNASIUM, CLASSROOM addn., SOUTH PORTLAND, ME. City, School Dpt., South Portland, Me. CD 11/28, under LB.

▲ **Frechette-Clough Constr. Co.**, Tupper Lake, N. Y., CA Approx. $1,000,000. Junior-Senior HIGH SCHOOL, Otis Property, Charles and Duane Aves., MIDDLEBURY, VT. Union School Dist. 3, Ralph A. Eaton, supt., Middlebury, Vt. Bids Dec. 6. CD 12/12, under LB.

▲ **John Bowen Co., Inc.**, 173 Boston St., Dorchester, Mass. LB $1,900,000. U-603 No. 1, women's PHYSICAL EDUCATION Bldg., Amherst, Mass. State, University of Mass., Amherst, Mass. Bids Dec. 15. CD 11/25.

▲ **White Constr. Co.**, 376 Boylston St., Boston, Mass. LB $1,659,800. est. $1,900,000. high SCHOOL Wind Mills Point, HULL, MASS. Town, School Planning & Bldg. Comn., c/o supt. schools, 81 Central St., Hull, Mass. Bids Dec. 15. CD 11/18.

▲ **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass. LB $1,098,600. two elementary SCHOOLS, Rockdale Ave. and Philip Rd., NEW BEDFORD, MASS. City, Municipal Bldg., New Bedford, Mass. Bids Dec. 16. CD 11/10.

▲ **James S. Kelliher Co.**, 1245 Hancock St., Quincy, Mass. CA $1,334,491. est. $1,250,000. junior high SCHOOL, Calvin Rd., QUINCY, MASS. City, Comr. P. Wks., City Hall, Quincy, Mass. CD 12/13, under LB.

▲ **A. E. Stephens Co.**, 1200 Main St., Springfield, Mass. LB $2,437,900. junior high SCHOOL, SPRINGFIELD, MASS. City, City Hall, Springfield, Mass. Bids Dec. 15. CD 12/2.

Massachusetts Wholesale Trucking Co., 170 Page Blvd., Springfield, Mass., Separate Contracts, $600,000. truck GARAGE and warehouse addn., SPRINGFIELD, MASS. Max Gitberg, 1570 Main St., Springfield, archt.

Davis Constr. Co., 464 White St., Springfield, Mass. LB Approx. $180,000. DISPLAY ROOM, office, Worthington St., SPRINGFIELD, MASS. F. L. DelPadre Assoc., 236 Chestnut St., Springfield, Mass. CD 10/26.

▲ **Frederick Berard**, Plumtree Rd., Springfield, Mass. Separate Contracts, $1,000,000. RESIDENTIAL DEVELOPMENT "Plumtree Park" incl. 112 Houses, SPRINGFIELD, MASS.

Elliott Co., 1330 Soldiers Field Rd., Boston, Mass., LB $364,182, est. $400,000. furnish, deliver, install two 2,000 kw non-condensing TURBINE GENERATORS for power plant, Bid No. 439, Proj. WEL-3. HOWARD, R. I. State R. I. & Providence Plantations, Div. Purchase, State House, Providence, R. I. Jenks & Ballou, Industrial Bank Bldg., Providence, R. I., engrs. CD 9/8.

Benjamin F. Poriss, 1021 Asylum Ave., Hartford, Conn., LB $449,487, base bid, Russell HALL, Connecticut State Hospital, MIDDLETOWN, CONN. State of Conn., P. Wks. Dpt., Hartford, Conn. CD 2/7/49.

▲ **Stone & Webster Engrg. Corp.**, 49 Federal St., Boston, Mass., CA Est. $3,000,000. design and construct, NUCLEAR ENGINEERING DEVELOPMENT CENTER, WINDSOR, CONN. Combustion Engineering, Inc., 200 Madison Ave., New York, N. Y. CD 12/8.

▲† **Ayers-Hagan-Booth, Inc.**, 35 Westminster St., Providence, R. I., LB $1,340,090. dehumidified WAREHOUSE, U. S. Naval Construction Battalion Center, NOY 89970, Spec. 47522, DAVISVILLE, R. I. Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, 10, Mass. Charles A. Maguire & Assocs., Turke Head Bldg., Providence, R. I., engrs. Bids Dec. 15. CD 11/14.

▲ **The Lummus Co.**, 385 Madison Ave., New York, N. Y. CA. $30,000,000. Design and Construct, 30,000 bbls. a day oil REFINERY to produce high octane gasoline, fuel oils and by-products, PORTSMOUTH, R. I. Commerce Oil Corp., 515 Madison Ave., New York 22, N. Y. CD 7/13.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **N. J., Palermo**—DORMITORY—BA 2/17—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., airmen's dormitory, technical training bldg., Palermo Air Force Station, $500,000, Kramer Hirsch & Carchidi, 115 W. State St., Trenton, N. J., engrs.-archts.

BUILDINGS—BA

N. J., Woodbury—SCHOOLS ADDNS.—BA 1/11—Woodbury Bd. of Educ., Woodbury. 4 elementary schools addns. $344,000. Harold M. Klaisz, Woodbury, archt. Charles H. Wolf, 112 S. 16 St., Phila., Pa., engr. CD 10/5/54.

▲ **Pa., Titusville**—SCHOOL—BA 1/20—Titusville Area Joint School, 2 story, brick, steel Colestock High School addn., alterations, $1,250,000. Jos. W. Hoover, 333 Blvd. of Allies, Pittsburgh, archt. CD 8/31/54.

N. J., Vineland—MILL ADDN., etc.—BA 2/15—GLF Co-op Farm Supply, Terrace Hill, Ithaca, N. Y., mill addn. and silo, $285,000.

N. J., Delanco—WAREHOUSE—Bids Asked—Beaunit Mills, Inc., Riverside, warehouse, truck terminal, office, $125,000, E. S. Barnett, 505 Cooper St., Camden, engr.

HEAVY CONSTRUCTION—LB & CA

▲ **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y. LB $9,794,810. channel imprvs., Sparrowhawk-Toussaints Channel near Ogdensburg, St. Lawrence Co., Spec. Pa-5-11077, St. Lawrence Contr. No. 22, NEW YORK. Power Auth. of the State of New York, 270 Broadway, New York 7, N. Y. Bids Dec. 20. CD 12/2.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

H. L. Baughman, Inc., 1240 Jefferson Rd., Rochester, N. Y. CA $1,125,349. twin bridges and approaches carry divided lanes Erie Section Thruway over 6 tracks N. Y. C., Pennsylvania and Nickel Plate R. R. near Swede Rd., Town of Portland, Chautauqua Co. CD 9/26, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—Yonkers Contg. Co., 959 Midland Ave., Yonkers, N. Y. CA $2,995,564. 4.48 mi. portion Erie Section Thruway starting Cain Rd. 1 mi. south Angola northeast on east side Rte. 20 to Evans Center-Eden Rd., Erie Co.; CA $2,792,824. 4.86 mi. portion Erie Section Thruway starting west Forest Rd. southwest Brocton, exten. northeast between Rtes. 5 and 20 to Lake Ave. near Brocton, Chautauqua Co.;

N. Y.—De Lillo Constr. Co., Inc., 71-51 51 Ave., Woodside, L. I., N. Y. CA $724,748. 1.32 mi. section Peninsula Blvd. from Lexington St. northward along Western edge Rockville Centre between Hemsptead Reservoir and North Village Ave. to Southern State Parkway, Nassau Co. Grand total $6,513,136. CD 9/26, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—D. W. Winkelman Co., Inc., 205 Harrison St., Syracuse, N. Y. CA $3,629,721. est. $4,711,000. N. Y. S. Thruway—Erie Sect., subdivision E-3B (Dunkirk-Pomfret town line to Fredonia Roberts Rd.) Bennett Rd., interchange; Roberts Rd S. H. 857 and 7, Secondary Cross Rds. and streets 3.48 (4.47 Acc. mi.) E. T. 55-11, E. T. C. 55-12, R. C. 55-77, S. T. C. 55-15, S. T 55-13, Chautauqua Co.; CA $2,781,124. est. $3,565,000. N. Y. S. Thruway—Erie Sect. Subdivision E-1A (Penn State line to Barden Rd.) Ripley-Sherman Pt. 1, S. H. 1297 and two secondary cross roads and access roads, 5.27 (319 acc.) mi. E. T. 55-10, S. T. 55-11, R. C. 55-73, Chautauqua Co. CD 11/1, under LB.

▲ **Poirier & McLane Corp.**, 33 W. 42 St., New York 36, N. Y. CA $13,152,837. Proposal B (3 bidders) Sect. 3 DeKalb Ave. reconstr. Brooklyn Boro, Contr. C-102, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. CD 10/10, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

H. J. Williams Co., Inc., 150 S. Sumner St., York, Pa. CA $3,033,442. divided hy., rein.-con. pavement 24 ft. wide on each side of an earth divisor area 9.34 mi. from near Strinestown to near North York Boro, U. S. 111 T.R. 24, York Co. CD 12/7, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—Lipsett, Inc., 210 S. 40 St., Phila. 4, Pa. LB $6,737,675. divided hy., bit. surf. 40 ft., each side of concrete divisor; six prestressed precast concrete bridges, I-beam bridge, concrete retaining walls, rein.-con. sewer, also constr. ramps and intersecting streets with c. conc. 0.83 mi., Vine St. Extension, city of Phila., L.R. 67045 (8), Philadelphia Co.;

Pa.—Hempt Brothers, R. D. No. 1, Camp Hill, Pa. LB $4,454,989. crushed aggregate base with bit. surf. 22 ft., 32 ft., incl. rein.-con. arch bridge, crushed aggregate base with bit. surf. 22 ft. wide, 1 rein.-con. bridge 3.13 mi., between Lancaster and Chester County lines, T.R. 122-23, Berks Co.;

Pa.—W. L. Dunn Constr. Co., Cochranton, Pa. LB $412,582. wid'n. existing pavement, exten. three rein.-con. structures, 7.2 mi., from Edinboro Boro to intersection of Legislative Rte. 89, T.R.U.S. 6N, Erie Co. Bids Dec. 16. CD 11/25.

▲† **Blount Bros. Constr. Co.**, Bell Bldg., Montgomery, Ala. CA $2,432,900. 36-in. variable pressure water tunnel at David W. Taylor Model Basin, CARDEROCK, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., Bids Nov. 30, awarded Dec. 16. CD 12/2, under LB.

Myers & Quigg Inc., 910 "O" St. S. E., Wash., D. C., LB $539,850. repairing asph. pavements, various locations, WASH., D. C. D. C. Govt., Dpt. of Hys., 499 Pa. Ave. N. W., Wash., D. C. Bids Dec. 13.

Alexander & Repass Co., 2005 Bladensburg Rd., N. E. Wash., D. C., CA $535,909. widen Key Bridge, incl. removing existing tracks, asph. surf., sidewalk and railing, constr. concrete roadway, cantilever sidewalk and lighting sys. WASH., D. C. D. C. Govt., Dpt. Hhs., 499 Pa. Ave., N. W. Wash., D. C. Bids Nov. 22, awarded Dec. 14. CD 11/29, under LB.

BUILDINGS—LB & CA

▲ **Greendale Estates**, c/o John Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. $1,000,000. 160 HOUSES in tract at Jericho Turnpike and McGaw Ave., CENTERREACH, N. Y.

Greenbrier Manor Corp., c/o Shulman & Soloway, archts. 100-15 Queens Blvd., Forest Hills, N. Y., Owner Builds, $750,000. 6 story APARTMENT, Union Turnpike and Grand Central Parkway, FLUSHING, N. Y. CD 7/14.

Fleetwood Realty Corp., c/o Schulman & Soloway archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds, $750,000. 6 story APARTMENT, Union Turnpike east of Springfield Blvd., FLUSHING, N. Y. CD 7/14.

▲ **Lazere Constr. Corp.**, 66 Park Ave., New York 16, N. Y. CA $2,395,000. (16 bidders) general constr., for criminal COURT BLDG. and PRISON Queens Blvd., Hoover Ave., 132 St. and 82 Ave., Queens Boro, KEW GARDENS, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. CD 12/6, under LB.

▲ **Merrick Estates Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds, $3,500,000. 170 HOUSES on 45 acre tract at Lindenmere Drive and Lindenmere Dr. West, MERRICK, N. Y.

▲ **C. W. C. Constr. Corp.**, 105 Court St., Brooklyn 2, N. Y. LB $1,648,000. (4 bidders). general constr., P.S. 129 Convent Ave. and W. 130 St., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 16. CD 11/18.

Lemer Equities, Inc., 332 E. 149 St., New York 51, N. Y. Owner Builds. $450,000. 6 story APARTMENT, 2976 Marion Ave., NEW YORK, N. Y. CD 9/28.

East 50th Corp., 391 E. 149 St., New York 55, N. Y. Owner Builds. $375,000. 8 story APARTMENT, 219-221 E. 50 St., NEW YORK, N. Y. CD 6/24.

▲ **James Stewart & Co., Inc.**, 230 Park Ave., New York 17, N. Y. CA Est. $1,500,000. ALUMNI HALL at site, NEW YORK, N. Y. New York University-Bellevue Medical Center, 30 St. and Front Ave., New York 16, N. Y.

▲ **Grayco Builders**, 106-21 Continental Ave., Forest Hills 75, N. Y. LB $1,624,000. (3 bidders) general constr., P.S. 41, W. 11 St. Ave. of the Americas and Greenwich Ave., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 19. CD 11/21.

Lorack Estates, Inc., 418 Bryant Ave., New York, N. Y. Owner Builds. $500,000. 6 story APARTMENT, Bronx Park east and Reiss Pl., NEW YORK, N. Y. CD 8/31.

G & A GROSS, c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y., **Owner Builds**, $750,000. 6 story APARTMENT, Springfield Blvd. northeast corner Grand Central Parkway, QUEENS VILLAGE, N. Y. CD 6/22.

Moyer Bros., Altoona, Pa. CA Est. $500,000. 1 story, brick, block, steel WAREHOUSE, ALTOONA, PA. Ward Trucking Co., Altoona, Pa. CD 3/10.

▲ **S. Yellin & Son**, 222 N. 11 St., Phila., Pa. CA $1,000,000. OFFICE, parking area, Bala Ave. and Cityline Ave., BALA CYNWYD, PA. One Bala Ave., Inc., 403 W. Woodlawn Ave., Phila., Pa. CD 11/2.

Holland Development Co., c/o George Noe, Bustleton Ave., Feastervilie, N. J. Separate Contracts, $900,000. RESIDENTIAL DEVELOPMENT, Holland Farms, FEASTERVILLE, PA.

Lloyd F. Kerschner, Inc., 400 W. Main St., Morristown, Pa. CA $350,000. SCHOOL, convent, KING of PRUSSIA, PA. Mother of Divine Providence R. C. Church, King of Prussia, Pa. Bids Nov. 16. CD 11/3.

▲ **Mathew Lievo & Sons, Inc.**, Laurence Savings & Trust Bldg., New Castle, Pa. LB $1,096,000, est. $1,500,000. brick, steel Senior High SCHOOL addn., alteration, NEW CASTLE, PA. School Auth. of New Castle, New Castle, Pa. Bids Dec. 13. CD 11/16.

Bd. Educ., 21 and Winter Sts., Phila., Pa., rejected bids Dec. 8, elementary SCHOOL, 18 and Green Sts., PHILA, PA. Will re-advertise. CD 11/30.

Rosemont Village, Inc., Center Bldg., Upper Darby, Pa., Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Baily Rd., ROSEMONT, PA. Lewis Cowan, 1505 Pine St., Phila., Pa., archt.

† **Herbert Lawrence Bright**, 427 "O" St. S.W., Wash. 24, D. C. LB $551,353. nine Type D 36 family HOUSING units for enlisted men, ENG-18-020-56-10, Aberdeen Proving Ground, ABERDEEN, MD. and NEW CUMBERLAND, PA. U. S. Eng., Box 1715, Baltimore 3, Md. Bids Dec. 13. CD 11/30;
Resinger Bros., Box 516, Carlisle, Pa. LB $599,206. four family units, enlisted men, 7 bldgs. senior officers' quarters, colonel's quarters, New Cumberland General Depot, Pa. (Aberdeen, Md. and New Cumberland, Pa.).

▲ **Consolidated Engineering Co.**, 20 E. Franklin St., Baltimore 2, Md. CA $1,450,000. 2 story, masonry DEPARTMENT STORE, BALTIMORE, MD. Bradley Realty Co., 4501 Edmondson Ave., Baltimore, Md.

▲ **The Wade Building Co.**, c/o Valley Crest, RFD No. 6, Dulany Valley Rd., Baltimore 4, Md., Separate Contracts, $2,392,000. 152 brick DWELLINGS on Seaword Rd., Scarlett Rd., Stacy Court, Providence Rd., Campus Hills Section, BALTIMORE, MD.

Eisen-Magers Constr. Co., 145 Kennedy St., N. W., Wash., D. C. CA $574,806. junior high SCHOOL, addns., alterations, Maryland Park, UPPER MARLBORO, MD. Bd. Educ., Prince George's Co., Upper Marlboro, Md. Bids Dec. 13. CD 12/7.

SOUTH

HEAVY CONSTRUCTION—BA

Ky., Barbourville—SWIMMING POOL—BA 1/12—State, Div. Purchases, Frankfort, swimming pool, Union College, John W. Wilson, 508 E. Main St., Lexington, archt. CD 8/12.

† **Va., Norfolk**—SPRINKLER SYS.—BA 1/17—Dist. P. Wks. Office Fifth Naval Dist., U. S. Naval Base, Zone 11, sprinkler sys., Building H8-24. U. S. Naval Base, NOY 93497, Spec. 49893 S/F. Plans deposit $10.

† **North Carolina**—BA About 1/18—U. S. Eng., 308 Customhouse, Wilmington, rubble-mound breakwater at Oriental, Pamlico Co. at mouth of Smith Creek, CIVENG-1-075-56-15. Plans deposit 80c. CD 9/19.

▲† **Ga., Savannah**—HOSPITAL—BA 1/18—U. S. Eng., 200 E. St. Julian St., 92,000 sq. ft. 200-bed hospital, Hunter Air Force Base, ENG-09-133-56-31. CD 11/15.

HEAVY CONSTRUCTION—LB & CA

NORTH CAROLINA—State Hy. and P. Wks. Comn., Raleigh,
Asheville Constr. Co., Box 5119 Biltmore Station, Asheville, N. C., CA $530,671. est $400,000-$500,000. grading and structures 8.8 mi. US 70 relocation, Proj. 8183, Burke Co. Bids Nov. 29, awarded Dec. 16. CD 12/2, under LB.

† **T. A. Loving & Co.**, Bank of Wayne Bldg, Goldsboro, N. C., LB $908,264. air force dormitories for enlisted men and dental clinic, Pope Air Force Base. ENG-31-075-56-40. FORT BRAGG, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Dec. 13. CD 11/10.

† **Cheney Electric Co. of Charlotte, Inc.**, 1700 Hutchinson Ave., Charlotte, N. C., LB $192,000, electrical distr. and fire alarm sys., U. S. Marine Corps Auxiliary Landing Field, NOY 92503. BEAUFORT, S. C. P. Wks. Officer, Dpt. Navy, Naval Base, Charleston, S. C. Bids Dec. 15. CD 11/10.

† **J. E. Moore Co.**, Greenwood, S. C., LB $113,326, Army Reserve TRAINING CENTER, ENG 38-081-56-36. GREENWOOD, S. C. U. S. Eng., 31 Customhouse, Charleston, S. C. Bids Dec. 14. CD 11/4.

▲ **GEORGIA**—Georgia Rural Roads Auth., No. 2, Capitol Sq., Atlanta,
GRRA—**Seaboard Constr. Co.**, Box 558, Brunswick, Ga., LB $79,181, grading, paving, 1 bridge 5.76 mi., RR-PR 158 (1), Atkinson Co.; LB $200,504, grading, paving, 7.585 mi., RR-PR 1729 (1), Camden Co.;
GRRA—**Reeves Engrg. Constr. Co.**, Box 473, Americus, Ga. LB $87,768, grading, paving 5.411 mi., RR-PR 1871 (1), RR-PR 1627 A (2); RR-PR 417 A (2); RR-PR 1888 (1), Sumter Co.;
GRRA—**Mose Gordon Lumber Co.**, Commerce, Ga., LB $102,892, grading, paving 8.669 mi. RR-PR 1595 A (3), Jenkins Co.;
GRRA—**H. M. Pafford**, Box 145, Waycross, Ga., LB $237,547, grading, paving, 4 bridges 10.083 mi. RR-PR 194 (2), Charlton Co.;
GRRA—**Americus Engrg. & Constr. Co.**, Box 589, Americus, Ga., LB $95,041, grading, paving 7.456 mi. RR-PR 2115 (1), Peach Co.;
GRRA—**Coffee Constr. Co.**, Eastman, Ga., LB $116,490, grading, paving 58 mi. RR-PR 12 (2), Pierce Co.;
GRRA—**Kennedy Engrg. & Constr. Co.**, Ashburn, Ga., LB $179,467, grading, paving 5.75 mi., RR-PR 2217 (1); RR-PR 2255 (1); RR-PR 2171 (1), Wilkinson Co.;
GRRA—**Hugh Steele Constr. Co.**, Center, Ala., LB $119,002, grading, paving 3.14 mi., 3.826 mi., RR-PR 1734 (2); RR-PR 1766 (2); RR-PR 1636 (2). Monroe Co.; LB $167,439, paving 7.379 mi., 1.131 mi., 1.838 mi., 3.313 mi., 2.186 mi., and 5.236 mi. RR-PR 982 A (2); RR-PR 2166 (1); RR-PR 2167 (1); RR-PR 2168 (1); RR-PR 2169 (1); RR-PR 2170 (1), Troup Co. Bids Dec. 16. CD 12/6.

Sullivan, Long & Hagerty, Box 10325, Tampa, Fla., CA $518,243, XE-18, sewage sys. imprvs., TAMPA, FLA. City, Mayor and Bd. Representatives, City Hall, Tampa, Fla. Bids Nov. 3. CD 11/9, under LB.

(Continued on page 92)

Engineered Falsework Lowers Costs on Concrete Shell High School Buildings

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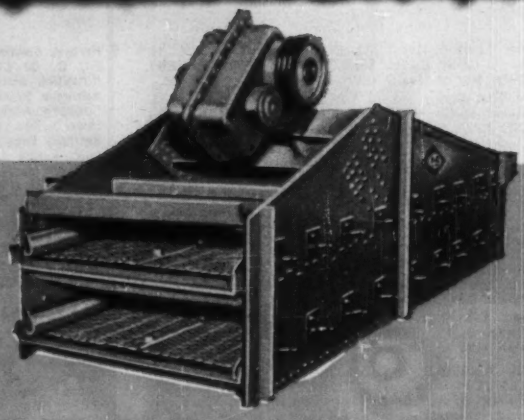

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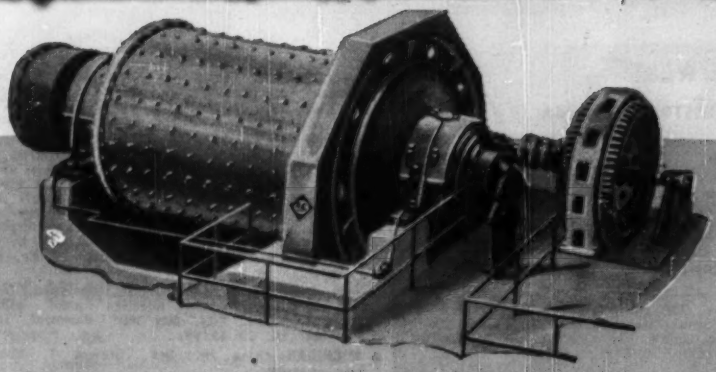

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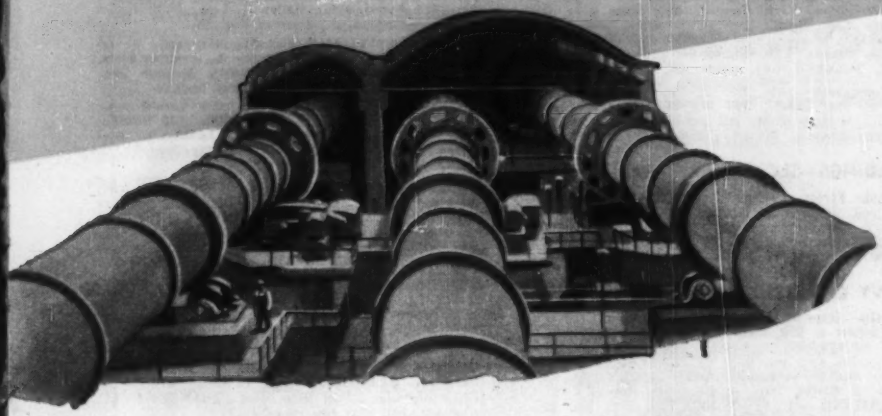

fine separation, wet or dry screening, rinsing and dewatering. The recently introduced general purpose Model AVS screen is the "talk" of the industry.

Grinding Mills — Allis-Chalmers manufactures all the proven mill designs, including those for producing specification or manufactured sand.

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An Allis-Chalmers rod mill converts unsalable material into specification sand. It prolongs productivity of natural reserves. It produces sand where natural sands are unavailable or unusable.

Processing specification sand or coarse aggregate from rock, and grinding aggregate or natural sand, are particularly abrasive and difficult jobs. That's why Allis-Chalmers rod mills are so well suited for the job. Basically, the A-C rod mill is a simple, rugged machine . . . a grinding mill that requires little attention, yet provides continuous dependable performance.

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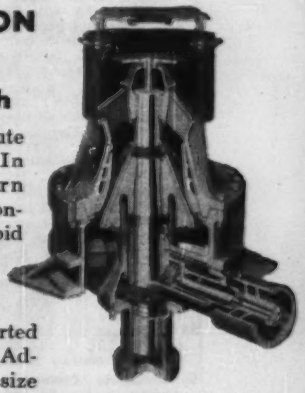

One-man, one-minute product control! In this truly modern crusher, *Hydroset* control provides a rapid and convenient means of raising and lowering the hydraulically supported crushing mantle. Adjustment to precise size is accomplished by the flip of a switch. Compensation for wear and fast emergency unloading are accomplished in the same easy manner.

Produces Cubical Product

Because of its small eccentric throw in relation to crusher setting, the *Hydrocone* crusher also helps you meet specification by producing a uniform, cubical product. With a smaller effective ratio of reduction during each crushing stroke, fines, slivers and flats are kept to a minimum.

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▲ **GEORGIA**—State Hy. Dpt., No. 2 Capitol Sq., Atlanta, Ga.—**Sloan Constr. Co.**, Box 747, Greenville, S. C., LB **$73,680**, resurf. 7 mi. SAP 1963 (8), Chatham Co.; Ga.—**Bryant Bros.**, Camilla, Ga., LB **$141,591**, grading, paving 7.006 mi., PR 2076-B (1), Crawford and Peach Counties;
Ga.—**Pittman Constr. Co.**, 537 Plaster Rd., N. E., Atlanta, Ga., LB **$1,011,207**, paving 3.508 mi. FAP UI-563 (8), Fulton Co.;
Ga.—**E. A. Hudson Sons**, Bolton, Ga., LB **$152,181**, grading, paving 7.274 mi. S-1172 (2), Macon Co.;
Ga.—**Hugh Steel Constr. Co.**, Center, Ala., LB **$151,030**, grading, paving 5.398 mi. FS-0760 (1), Meriwether Co.;
Ga.—**M. R. Woodall Constr. Co.**, 1594 Lakewood Ave. S. E., Atlanta, Ga., LB **$208,463**, grading, paving, 1 bridge 3.87 mi. S-1582 (1), Whitfield Co. Bids Dec. 16. CD 12/6.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,
Ala.—**Scott Constr. Co.**, Thomasville, Ga., LB **$1,244,846**, bridge over Tombigee River, west of Coffeeville, Clark and Choctaw Counties;
Ala.—**Henry Newton**, Decatur, Ga., LB **$167,633**, substructure, bridge over Coosa River, Ala. Hy. 22, Coosa and Chilton Counties;
Ala.—**G. W. Norrell Constr. Co.**, Georgiana, Ala., LB **$469,210**, superstructure, bridge over Coosa River, Ala. Hy. 22, Coosa and Chilton Counties;
Ala.—**Harbert Constr. Corp.**, 2208 8th Ave. S., Birmingham, Ala., LB **$533,710**, substructure, bridge over Tennessee River, southeast of Stevenson, Jackson Co.;
Ala.—**U. S. Steel Corp.**, 71 Broadway, New York, N. Y. LB **$1,276,032**, superstructure, bridge over Tennessee River, southeast of Stevenson, Jackson Co. Bids Dec. 16. CD 11/14.

▲† **Linwood Smith & Kenyon Dredging Co., Inc.**, Port Allen, La. CA **$1,551,111**. Lower Auxiliary channel Item LAC-3 in Yazoo Co., CIVENG-22-052-56-47, MISSISSIPPI. U. S. Eng., P. O. Box 60, Vicksburg, Miss. CD 11/21, under LB.

BUILDINGS—LB & CA

▲ **Koppers Co. Inc.**, Koppers Bldg., Pittsburgh, Pa., CA. 41 chemical-recovery COKE OVENS and altering chemical recovery and benzol facilities. WEIRTON, W. VA. Weirton Steel Co., 1935 Stillwell St., Weirton, W. Va. CD 9/24/47.

John R. Cook & Co., Inc., Martinez, Ga., CA **$402,789**, HIGH SCHOOL, ABBEVILLE, S. C. Abbeville Co. School Dist. No. 60, Abbeville, S. C. Lyles, Bissett, Carlisle & Wolff, 1320 Bull St., Columbia, S. C., archts. Bids Dec. 8.

Jones-Mahoney Corp., 1715 Lemon St., Tampa, Fla, LB **$660,485**. senior high SCHOOL, Winter Haven, BARTOW, FLA. Bd. P. Instruction, C. M. Harden, supt., Bartow, Fla. CD 1/10/52.

▲ **Chemical Constr. Corp.**, 525 W. 43 St., New York 36, N. Y. CA. Est. **$2,000,000**. 200,000 ton per year triple superphosphate PLANT, BREWSTER, FLA. American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y. Dorr-Oliver, Inc., 99 Park Ave., New York, N. Y., engr.

▲ **Alexander & Kingbay**, 4641 Hiawatha Ave., Minneapolis, Minn., CA Est. **$1,750,000**. 1 and 2 story 150x1,003 ft. and 150x260 ft. CB-S air-conditioning, Flamingo SHOPPING CENTER, 1342 Flamingu Way, HIALEAH, FLA. Flamingo Center, Inc., 400 Metropolitan Bldg., Minneapolis, Minn. Thorshov & Cerny, Inc., 400 Metropolitan Bldg., Minneapolis, Minn. archt.

Spector & Sons, 575 S. W. 22 Ave., Miami, Fla. CA Est. **$344,000**. furniture SHOWROOM, 3 story, 89x204 ft. warehouse, office, N. E. 42 St. and Second Ave., MIAMI, FLA. House & Garden Furniture Co., 1444 Biscayne Blvd., Miami, Fla. Anis & David, 1134 Lincoln Rd., Miami Beach, Fla., archts., Jules P. Channing & Assoc., 3101 Biscayne Blvd., Miami, Fla., engrs.

Bd. P. Instructions, 275 N. W. Second St., Miami, Fla., cancelled bids to have been opened Dec. 21, Richmond Heights Elementary SCHOOL, MIAMI, FLA. CD 12/14.

S. S. Jacobs Constr. Co., 624 Hildebrandt Bldg., Jacksonville, Fla. CA **$450,000**. 1 story, 202x452 ft., steel, brick WAREHOUSE and office, Lemon and Rome Sts. TAMPA, FLA. Graybar Electric Co., Inc., 416 Ellamae Ave., Tampa, Fla. Richards S. Himes & McAllister Blanton Assoc., 3637 Henderson Blvd., Tampa, Fla., archts. Hunting Larsen & Dunnells, Century Bldg., Pittsburgh, Pa., engrs.

J. A. Harper, Box 5, Crowville, La. LB **$345,345**. 25,000 sq. ft. OFFICE, 2 laboratory bldgs., 18 St. MONROE, LA. Columbian Carbon Co., Outachita Bank Bldg., Monroe, La. H. L. Land, 1104 Outachita National Bank Bldg., Monroe, archt. CD 6/16/54.

M & L Constr. Co., Box 95, Kaplan, La. LB **$817,700**. (7 bidders) L-shaped high SCHOOL, administrative offices, laboratory bldgs., cafeteria and gymnasium, elementary classroom, 2 story brothers' residence 40 Arpent Rd., NEW IBERIA, LA. St. Peters Catholic Church, 108 E. St. Peter St., New Iberia, La. Bids Dec. 7. CD 11/28.

† **Southern Constr. Co.**, Box 1307, Augusta, Ga. LB **$751,685**, est. $729,406. 2 DORMITORIES, dining hall, FORT CAMPBELL, KY. U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn. Bids Dec. 8. CD 11/30.

Platoff Constr. Co., 501 Woodbine St., Louisville, Ky. LB **$465,827**, est. $477,185. (6 bidders) general constr., mechanical work, site imprvs. Johnsontown Road Elementary SCHOOL, LOUISVILLE, KY. Jefferson Co., Bd. Educ., 616 W. Jefferson St., Louisville, Ky. Bids Dec. 15. CD 12/2.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Ill., Evanston—BA 1/24—City, City Hall, refuse incinerator plant, $790,000. Greeley & Hanson, 220 S. State St., Chicago, Zone 4, engrs.

Ill., Arlington Heights—MAUSOLEUM—Bids Asked—Memory Gardens Cemetery, Arlington Heights, mausoleum, $800,000. Professional Design Service, 228 N. La Salle St., Chicago, Zone 1, archts.

BUILDINGS—BA

▲ **Ill., Chicago**—SCHOOL, etc.—BA 1/6—Cathedral of Holy Name, 720 N. Wabash St., Chicago, high school, grammar school and convent, $2,300,000. McCarthy & Smith, 69 W. Delaware St., Chicago, Zone 10, archts. CD 11/12/54.

▲ **Ill., Chicago Heights**—SCHOOL ADDN.—BA 1/11—School Dist. 307, 10 Ave., Chicago Heights, Bloom Twp. High School addn., $3,700,000. Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago, Zone 3, archts. CD 11/23.

Ind., Kokomo—SCHOOL—BA 1/15—Kokomo Center Holding Corp., Kokomo, Lafayette Park School. $550,000. Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., archts. CD 11/25.

▲ **Ill., Chicago**—HOSPITAL ADDN.—BA 1/16—Presbyterian Hospital, 1753 Congress St., Hospital addn. Inside West Side Medical Center, $3,600,000. Burnham & Hammond, 53 W. Jackson St., Chicago, Zone 4, archts. CD 12/5/50.

O., Chagrin Falls—SCHOOLS—BA 1/17—Bd. Educ., Orange School Dist., Pepper Pike Village, Orange Elementary school addn. Plans deposit $20. Outcalt, Guenther & Assocs., 13124 Shaker Square, Cleveland Zone 20, archts. CD 6/17.

Mich., Coldwater—CUSTODIAL BLDGS.—BA 1/19—State, A. N. Langius, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, two 83,000 sq. ft. custodial bldgs., Coldwater State Home and Training School. Harley, Ellington & Day, 153 E. Elizabeth St., Detroit, Zone 1, archts. CD 11/9.

Mich., Traverse City—ADMINISTRATION BLDG.—BA 1/19—State, A. N. Langius, dir., State Bldg. Dpt., Lewis Cass Bldg., Lansing, 1 story, part bsmnt., 128x161 ft. steel, masonry administration bldg. addn. Plans deposit $25. Swanson Assoc., E. Long Lake Rd., Bloomfield Hills, archts. CD 5/6.

O., Youngstown—JAIL, OFFICE—BA About 1/24—Mahoning Co. Comrs., Jail and Building Comn., Court House, 6 story county jail and office bldg. $900,000. Arsene Rousseau, Mahoning Bank Bldg., archt.

BUILDINGS—SLC

Ill., Lake Forest—FACULTY HOUSES, etc.—Lake Forest College, Sheridan and Deerpath Rd., soon lets contract (1) five faculty houses (2) womens dormitory. $500,000. Naess & Murphy, 80 E. Jackson St., Chicago, Zone 4, archts. CD 11/28.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Comn., Columbus,
O.—**Launder & Son, Inc.**, Station E, Box 6, Toledo, O. LB **$2,419,995**, est. $2,594,200, Type T-71 and structures 4.02 mi. U. S. R. 20-14.60. F-585 (11) (Part No. 1), Sandusky Co.;
O.—**A. J. Baltes, Inc.**, 11 Olive St., Norwalk, O. LB **$3,331,095**, est. $3,503,200, Type T-71 and structures 6.033 mi. U. S. R. 20-17.62. F-585 (11), (Part No. 2), Sandusky Co.;
O.—**S. J. Groves & Sons Co.**, 500 Wesley Temple Bldg., Minneapolis, Minn., LB **$2,372,924**, est. $2,496,500, Type T-71 and structures 2.508 mi. S. R. 120-3.93. Part No. 1, Toledo Expressway Sys. (City of Toledo), Lucas Co.;
O.—**Kane, O'Horo & Haenny, Inc.**, 65 W. Indianola Ave., Youngstown, O., LB **$123,452**, est. $138,500, Type T-71, 0.235 mi. U. S. R. 422-0.02, City of Youngstown, Mahoning Co.;
O.—cancelled bids to have been opened Dec. 13, Type T-35, 1.342 mi. U. S. R. 20-A (20.35-21.31), Village of Delta, Fulton Co. Bids Dec. 13. CD 12/2.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—**V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., CA **$3,566,178**. est. $4,199,000. Type T-71 and structures, 9.375 mi. U. S. R. 25. Sect. 12.99. IN-1067 (1), Hancock Co.;
O.—**D. R. Snoalley & Sons, Inc.**, 436 W. Market St., Celina, O., CA **$4,845,910**. est. $5,302,000, Type T-71 and structures, 13.112 mi. U. S. R. 25, Sect. 4.29. IN-196 (3), Miami Co.;
O.—**W. E. Ringwald**, 42 E. Second St., Chillicothe, O. CA **$1,415,285**. est. $1,575,900, Part No. 1, Type T-35 and T-71, 1.131 mi. City of Delaware; Part No. 2, Type T-35 and T-71 and structures, 3.838 mi. Troy Twp., U. S. R. 23, Sections (12.80-12.94), (13.92-17.48), Delaware Co.;
O.—**Oyler Brothers, Inc.**, 1324 Second St., S. W., Canton, O., CA **$1,793,215**. est. $2,071,500. Type T-35, T-71 and structure 6.549 mi. U. S. R. 62, Sect. 22.16, Stark Co.;
O.—**D. W. Winkelman Co., Inc.**, 205 Harrison St., Syracuse, N. Y., CA **$2,667,134**. est. $2,817,800. Type T-35 on B-70 and structures 1.264 mi. S. R. 18R, Sect. 12.90 (Part No. 7-Akron Expressway System), City of Akron, Summit Co. Grand total $14,287,722. Bids Dec. 6. CD 12/14, under LB.

OHIO—State Hy. Comn., Columbus,
National Engrg & Contrg. Co., 1968 W. Third St., Cleveland, O., LB **$702,498**, est. $735,000, bridge 0.693 mi. Type T-71, CR No. 11, S-1125 (1), Villages of Moreland Hills and Bentleyville, Cuyahoga Co. Bids Dec. 13. CD 11/4.

† **The W. B. Gibson Co.**, 200 Chestnut St., Warren, O. CA **$805,866**, aircraft parking aprons, warehouse, gymnasium, officers' club addn., two bulk storage sheds, secondary roads, vehicle parking areas, aircraft approach lighting, taxiway lighting, storm drainage and appurtenant facilities, Youngstown Municipal Airport. IFB ENG-36-058-56-1. YOUNGSTOWN, O. U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa. CD 11/2, under LB.

Calumet Constr. Co., 1247 169 St., Hammond, Ind., CA, **$850,000**, water filtration plant addn., HAMMOND, IND. City, City Hall, Hammond, Ind. Bids Dec. 19. CD 12/14.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Sargent Constr. Co., 2840 Bay Rd., Saginaw, Mich. CA **$1,712,471**. est. $1,900,000. grading 9-in. c. conc. 6 mi. dual hy. on US-131, F 41-88 C1-RO (F 140 16), Kent Co. CD 12/15, under LB.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Mich.—**William H. Gilliland**, Alpena, Mich. CA **$590,849**, est. $700,000. grading stabilized aggregate surf. 2.963 mi. on M-94, SS 2-6 C6-R (S 192 5), SS 2-22 C2-R (S 192 6), Alger Co.;
Mich.—**I. L. Whitehead Co.**, 1107 West. Easterday Ave., Sault Ste. Marie, Mich. CA **$588,766**. est. $660,000. stabilized aggregate pavement 8.383 mi. on relocation of M-69, SS 22-29 C7-R (S 229 4), Dickerson Co. CD 12/15, under LB.

BUILDINGS—LB & CA

Sam W. Emerson Co., 1836 Euclid Ave., Cleveland 15, O. LB Est. **$750,000**. Unit No. 1, 13,000 ft. of exhibit space MUSEUM. Total est. $2,500,000. CLEVELAND, O. Cleveland Museum of Natural History, Wm. Scheele, Dir., 2717 Euclid Ave., Cleveland 15, O. Garfield, Harris, Robinson & Schafer, 1740 E. 12th St., Cleveland 14, O., archts. CD 12/18/53.

▲ **H. L. Vokes Co.**, 1000 Wayside Ave., Cleveland 19, O. CA Est. **$1,000,000**. Design and Construct 5 story, 30,000 sq. ft. air-conditioned OFFICE. CLEVELAND, O. 2728 Euclid Bldg. Halley H. Lipp, 2829 Euclid Ave., Cleveland 15, O. Awarded Nov. 28.

The Austin Co., 16112 Euclid St., Cleveland, O. CA Est. **$750,000**. 1 story 95,000 sq. ft., concrete block, brick steel PLANT addn., COLUMBUS, O. Shoe Corp. of America, 35 N, 4 St., Columbus, O.

▲ **Hoisibauer-Fodor Building Co.**, 3308 Lorain Ave., Cleveland 13, O. CA Est. **$4,450,000**. 200 HOMES, five 2-story brick APARTMENTS, PARMA, O. Alex Fodor Realty Co., 3308 Lorain Ave., Cleveland 13, O. Awarded Dec. 9.

▲ **Kronenberger-Fodor Building Co.**, 3308 Lorain Ave., Cleveland 13, O., CA Est. **$7,800,000**. 400 brick or frame HOMES, to be known as Parkdale Homes Development, PARMA HEIGHTS, O. Alex Fodor Realty Co., 3308 Lorain Ave., Cleveland 13, O. Awarded Dec. 9.

Mahony-Troast Constr. Co., 790 Bloomfield Ave., Clifton, N. J., CA Est. **$500,000**. 61,000 sq. ft. FACTORY to mfr. metal tubing, south of city, US 25. WAPAKONETA, O. Superior Tube Co., 1938 Germantown Ave., Norristown, Pa.

▲ **Roy C. Clark Inc.**, 804 E. Chicago Ave., East Chicago, Ind., LB, **$1,018,930**. HIGH SCHOOL, HIGHLAND, IND. Highland School Bldg. Corp., 2633 Wicker St., Highland, Ind. Bids Nov. 30. CD 11/25.

Frost Brothers Constr. Co., 4835 W. Minnesota St., Indianapolis, Ind., Owner Builds, **$500,000**. HOMES, east side of city, INDIANAPOLIS, IND.

▲ **The Wolf Constr. Co.**, 613 N. Market St., Logansport, Ind., CA **$1,013,000**. est. $1,000,000. POWER PLANT, LOGANSPORT, IND. City, City Hall, Logansport, Ind. Awarded Dec. 15. CD 11/11.

August S. Caron & Co., 7327 W. North Ave., River Forest, Ill., Own Forces, **$500,000**. 45 HOMES BERKELEY, ILL.

† **Keno Constr. Co.**, Box 37, Highland Park, Ill., LB, **$803,406**, family HOUSING, Serial No. ENG-11-032-56-27, FORT SHERIDAN, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids Dec. 13. CD 11/23.

▲ **Ragner Benson Inc.**, 4744 W. Rice St., Chicago 5, Ill., CA, **$1,000,000**, top HOSPITAL ADDN., new doctors CLINIC bldg., HIGHWOOD, ILL. Highwood Hospital Foundation, 50 Pleasant Ave., Highwood, Ill. Awarded Dec. 12.

▲ **Canterbury Gardens Inc.**, 69 W. Washington St., Chicago 2, Ill., Own Forces, **$14,500,000**. 1,000 HOMES, MARKHAM, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, archt.

Republic Construction Co., 5270 Main St., Skokie, Ill., Own Forces, **$1,050,000**. 33 family HOUSING bldgs., Church St. and Grosse Pointe Rd., SKOKIE, ILL.

▲ **Alexander & Kingbay**, 4641 Hiawatha Ave., Minneapolis, Minn., CA, **$2,000,000**. 1 story L-shaped, 200,000 sq. ft., 35-store SHOPPING CENTER, FOND DU LAC, WIS. Henry Shanedling Sons Corp. 2025 Nicolet Ave., Minneapolis, Minn. Thorshov & Cerny, Inc., 400 Metropolitan Bldg., Minneapolis, Minn., archt.

Ferguson & Philips, 13546 Auburn St., Detroit, Mich. CA $405,800. general contract, elementary SCHOOL, Katherine and Edward Sts., ROYAL OAK, MICH. Royal Oak Twp., Leonard Maker, secy., Lamphere School Dist., Royal Oak, Mich. Bids Dec. 12. CD 11/29.

Schurrer Constr. Co., Pontiac, Mich. CA $729,000. Auburnshire, Disco and Wiley SCHOOLS addns., UTICA, MICH. Bd. Educ., Utica Community Schools, Utica, Mich. CD 12/15, under LB.

▲ F. H. Martin Constr. Co., 955 E. Jefferson St., Detroit 7, Mich. CA Est. $6,200,000. steel enameling PLANT, 2 story office, 6600 E. 15 Mile Rd., WARREN, MICH. Briggs Mfg. Co., Buhl Bldg., Detroit 26, Mich.

WEST OF MISSISSIPPI

BUILDINGS—BA

▲ Kan., Atchison—RESIDENT HALL—BA 1/10—Mount St. Scholastica College, Benedictine Sisters, Atchison, 5 story, 46x230 ft. brick, concrete, resident hall, 3 story, 112x174 ft., brick, concrete, student activity, $1,500,000. Extended date. Maguolo & Quick, 4908 Delmar Blvd., St. Louis, Zone 8, archts. CD 12/13.

Minn., St. Paul—SCHOOL—BA 1/3—Bd. Educ., J. Voigt, Bd. archt., bids by K. E. Kinvig, city purch. agt., 253 City Hall, general contract, Sheridan Elementary School, East and Flandrau Sts., $344,000. Bettenberg, Townsend & Stolte, 1437 Marshall Ave., St. Paul, archts. CD 12/12, under LB.

N. D., Bismarck—WAREHOUSE—BA 1/10—Super-Valu Stores, Inc., Hopkins, warehouse, office on Airport Rd., ½ mi. west of 19th St. RR crossing, $700,000. Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, Minn., archts. CD 10/14.

Minn., Robbinsdale—SCHOOL—BA 1/11—Bd. Educ., Independent School Dist. No. 24, H. V. Michel, clk., elementary school at Brooklyn Center, west of Hy. 152, south of 57 Ave. North, $550,000. Plans deposit $25. Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 9/26.

N. D., Jamestown—DORMITORY—BA 1/18—Jamestown College, Dr. E. H. Rian, pres., 2 story, 196x262 ft., 100 unit girls' dormitory, $550,000. Plans deposit $25. Lang & Raugland, 802 Wesley Temple Bldg., Minneapolis, Minn., archts. CD 8/23, under LB.

▲ Tex., Houston—HIGH SCHOOL—BA 2/16—Houston Independent School Dist., 1300 Capitol St., 75,000 sq. ft. masonry West Bellaire Area Junior High School. $2,225,000. Stayton Nunn, 3272 Westhimer St., co-or. archt. George & Abel B. Pierce, 2200 Welch St., archts. Walter P. Moore, 2 Pinedale St., James H. Howard & Assocs., 4101 San Jacinto St., engrs. CD 11/22/54.

BUILDINGS—SLC

Minn., Wayzata—ENGINEERING and RESEARCH BLDG.—Cargill, Inc., Grain Exchange Bldg., Minneapolis, soon lets contract 2 story, part bsmnt., 82x192 ft., engineering and research bldg., McGinty Rd. and Crosby Rd., $200,000. M. Enary & Krafft, 510 McKnight Bldg., Minneapolis, archts.

HEAVY CONSTRUCTION—LB & CA

▲ MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Minn.—Kraus Anderson of St. Paul Co., 190 Ramsey St., St. Paul, Minn. LB $768,915. (7 bidders) grade, grav. base, bridges 1.1 mi. between 0.7 mi. south of South Limits of Shakopee and Shakopee, Scott Co.;

Minn.—J. W. Craig Co., 1814 California St. N. E., Minneapolis, Minn. LB $202,421. (8 bidders) grade, grav. base, plant-mixed bit. surf. 1.9 mi. between West Limits of Springfield and 0.5 mi. east of Springfield, Brown Co.;

Minn.—J. S. Pukrup, Ivanhoe, Minn. and R. E. Munns, Adrian, Minn. LB $181,518. (9 bidders) grading 7 mi. between 1 mi. north of Adrian and 1 mi. north of Lismore, Nobles Co. Bids Dec. 16. CD 12/1.

City, L. Johnson, city clk., City Hall, Minneapolis, Minn. Own Forces. Est. $244,000. 12-to 54-in. storm sewers, 31 St., Mississippi River to Minnehaha Ave. and 32 St from 44 Ave., Minnehaha Ave., MINNEAPOLIS, MINN. H. Erickson, city engr., W. A. Ostrem, asst. engr. CD 5/10/55.

R. W. Moore, 886 Edmond Ave., St. Paul, Minn. LB $91,071 (6 bidders) water and sewer extens. 8,904 lin. ft. 6- and 12-in. c.i. pipe, 17 hydrants, 6,789 lin. ft. 8-in. sanitary sewer, 24 manholes, sewage lift station, 1,028 lin. ft. c.i. pipe, force main, WEST ST. PAUL, MINN. City, E. Zehnder, clk., West St. Paul, Minn. Bids Dec. 13. CD 12/7.

▲ Kansas City Bridge Co., 928 Broadway, Kansas City, Mo. LB $3,028,955. substructure and superstructure, 2nd Fairfax Bridge, serving North bound traffic over Missouri River between Platte Co., Mo., and Fairfax District of Wyandotte Co., Kan., PLATTE CITY, MO. Platte Co., Court House, Platte City, Mo. Bids Dec. 15. CD 11/23;

Tobin Constr. Co., 3700 Rainbow Bldg., Kansas City, Kan. LB $389,899. north approach; LB $212,331. south approach. (Platte City, Mo.).

† American Elin Corp., 1 Wall St., New York, N. Y. CA $769,700, three outdoor auto-transformers, for Granite Falls Sub-station, Missouri River Basin Proj. Spec. DS 4549. SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids Nov. 15. CD 11/28, under LB.

(Continued on page 96)

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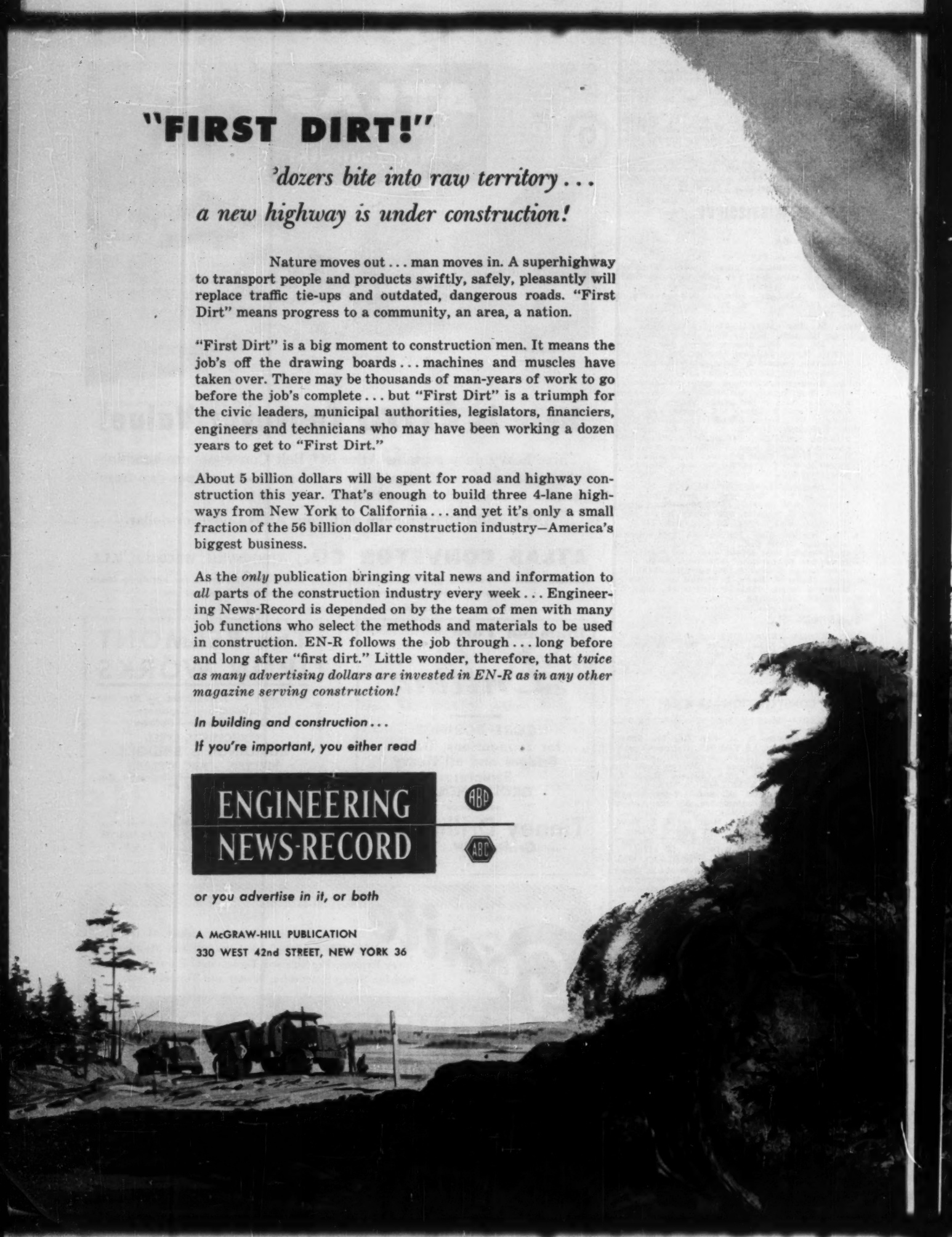


(Continued from page 93)

Hoak Constr. Co., Box 158, West Des Moines, Iowa, CA **$438,363.** 66.7 mi. rural distr. lines, Minnehaha Co., SOUTH DAKOTA. East River Electric Power Co-operative, Madison, S. D. Bids Aug. 25. CD 8/18.

▲† **J. W. Bateson Co.**, Gilbraltar Life Bldg., Dallas, Tex., LB **$1,710,790,** airmen's dormitory and recreation field house, Ellsworth Air Force Base. Inv. 25-066-56-25. RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Dec. 20. CD 11/28.

Brodis Constr. Co., Box 2064, Dallas, Tex., LB **$296,605,** 14-in.; LB **$285,498,** 12-in. water mains from McKinney to Farmersville, DALLAS, TEX. North Texas Municipal Water Dist., Wylie, Tex. Bids Dec. 13. CD 11/25.

Troth & Embrey, 4539 N. Central Expressway, Dallas, Tex., CA **$75,000,** hard paved streets, curbs and gutters, RICHARDSON, TEX. Lindsay Embrey & Assocs., 4539 N. Central Expressway, Dallas, Tex.

W. R. Grun Constr. Co., 1912 Culebra Ave., San Antonio, Tex., CA **$175,000,** 7th Unit, asphalt paving in west side streets, SAN ANTONIO, TEX. City, City Hall, San Antonio, Tex. CD 12/5.

Hansen & Parr Constr. Co., W315, Boone St., Spokane, Wash. CA **$169,000.** bridge piers and abutments for another span in series of railroad bridges necessary on Noxon Rapids hydro proj., Noxon, MONTANA. Washington Water Power Co., W825 Trent St., Spokane, Wash.

† **Northwestern Engr. Co.**, 1311 St. Joe St., Rapid City, S. D. LB **$769,539.** est. $705,276. second phase of road and street constr., Glasgow Air Force Base, Inv. 56-15, GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 13. CD 11/30.

† **U. S. Eng.**, City-County Airport, Walla Walla, Wash., cancelled bids to have been opened Dec. 28, GAR-1 bulk ammo storage bldg., Malmstrom Air Force Base, GREAT FALLS, MONT. CD 12/7.

▲† **Nilson-Smith Constr. Co.**, 800 2 St. S., Great Falls, Mont. and **Northwestern Engineering Co.**, 1311 St. Joe St., Rapid City, S. D. (joint bidders) LB **$2,296,311.** est. $1,749,729. (4 bidders) apron paving and utilities, Mamstrom Air Force Base, Inv. 56-18, GREAT FALLS, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 15. CD 11/14.

BUILDINGS—LB & CA

Viking Constr. Corp., 5948 Pleasant Ave., Minneapolis, Minn. LB **$634,000.** (9 bidders) general contract, superstructure 1 story Black Dog SCHOOL, State Hy. 13 near Hy. 65, Dakota and Scott Counties, BURNSVILLE, MINN. Bd. Educ., Joint Consolidated School Dist. No. 15, J. Metcalf, supt., Shakopee, Minn. Bids Dec. 15. CD 11/30.

D'Arcy Leck Constr. Co., 2838 Stevens Ave., Minneapolis, Minn. CA **$561,666.** general contract, 2 story, ground floor, 156x244 ft., U-shaped SCHOOL and residence, ST. LOUIS PARK, MINN. De LaSalle Institute, (Order of Christian Brothers) Glencoe, Mo. CD 12/14, under LB.

Rolla Public Schools Dist., Rolla, Mo. rejected bids Nov. 15, high SCHOOL, auditorium-gymnasium, elementary school, ROLLA, MO. LB **$505,387.** CD 11/23, under LB.

▲† **Fleischer-Seeger Constr. Co.**, 4900 Washington Blvd., St. Louis 8, Mo. LB **$2,750,000.** LABORATORY (Subcontract No. WS 22) for Atomic Energy Comn., WELDON SPRINGS, MO. Fruin-Colnon Contg. Co. & Utah Constr. Co., joint ventures, St. Louis Area Proj. Contr. AT (40-1) 1966, P. O. Box 422, St. Charles, Mo. Bids Dec. 15. CD 12/29/54, under CA.

Cross Constr. Co., 902 W. 23 St., Tulsa, Okla. CA **$688,428,** est. $700,000. LABORATORY and offices, 6200 S.E. 41 St., TULSA, OKLA. Seismograph Service Corp., Kennedy Bldg., Tulsa, Okla. W. H. Wolaver, 1851 E. 71 St., Tulsa, archt. Awarded Dec. 8.

Cothrum-Murray Co., Inc., 2116 N. Field St., Dallas, Tex. Own Forces. **$380,050,** 30 DWELLINGS; **$368,175,** 25 DWELLINGS, DALLAS, TEX. CD 9/23.

▲† **Texarkana Constr. Co.**, P. O. Box 1079, Texarkana, Tex., LB **$3,277,140,** Fort Hood-Killeen permanent family HOUSING. ENG-41-443-56-45. FORT HOOD, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Alexander, Dunaway, Jones & Johnson, 2008 W. Alabama St., Houston, Tex., archts.-engrs. Bids Dec. 20. CD 11/16.

▲ **Stanley Bennett**, Bellaire, Tex., Force Account. **$358,132,** 28 DWELLINGS; **$372,185,** 32 dwellings; **$370,000,** 35 dwellings. Grand total **$1,100,317.** HOUSTON, TEX. CD 11/16.

▲ **Frank J. Gaskey & Sons Constr. Co.**, 1430 N. Rice St., Houston, Tex., Owner Builds. **$350,000,** 21 DWELLINGS; **$357,500,** 26 dwellings; **$364,125,** 25 dwellings. Grand total, $1,071,625. HOUSTON, TEX. CD 11/7.

▲ **Wm. D. Morse**, Morse Wholesale, 3302 Canal St., Houston, Tex. Day Labor. **$371,118** (L) 38 DWELLINGS; **$364,405** (M) 32 DWELLINGS; **$377,178** (N) 35 DWELLINGS. Grand total $1,112,601. PASADENA, TEX. CD 11/11.

▲ **Mead & Mount**, Denver Club Bldg., Denver, Colo., CA **$1,647,000,** general constr., JUNIOR HIGH SCHOOL for Harvey Park, DENVER, COLO. School Dist. No. 1, 414 14th St., Denver, Colo. Bids Dec. 7, awarded Dec. 14. CD 12/14, under LB.

▲ **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland, O. CA Est. **$10,000,000.** CATALYTIC REFORMER and hydrogen PLANT, LOMA, COLO. American Gibsonite Co. (Barber Oil Corp. and Standard Oil of Calif.), 134 W. 3 St., Salt Lake City, Utah.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Calif., March Air Force Base**—SHOP—BA 1/11—U. S. Eng., 751 S. Figueroa St., Los Angeles, armament and electronic shop, March Air Force Base, ENG-04-353-56-55, $400,000. CD 2/15.

BUILDINGS—BA

Calif., Anaheim—SCHOOL—BA 1/6—Magnolia School Dist., Anaheim, elementary school, Gilbert & Cerritos Sts., $500,000. CD 9/27.

▲ **Calif., Long Beach**—HIGH SCHOOL—BA 1/27—Long Beach Bd. Educ., 715 Locust Ave., Lakewood Senior High School, Lakewood. $5,000,000. Hugh Gibbs, 441 E. First St., archt. CD 12/11/51.

HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—State Hy. Dpt., Boise,
Idaho—Marion J. Hess, Malad, Idaho. LB **$501,512.** roadbed plant mix, surf. 26.6 ft. concrete bridge on 6.332 mi., State 44, Canyon and Ada Counties. LB **$132,570.** bit. surf. tr. 18.3 mi., State 28 and stockpile, Lemhi Co.;
Idaho—Frank G. Boulne, Yardley, Wash. LB **$684,758.** crushed base, bit. surf. tr. 20.28 mi. US. 95 alt. and on 7.992 mi. US 95 alt., Latah and Benewah Counties;
Idaho—Pickett & Nelson, Idaho Falls, Idaho, LB **$384,233.** roadway, railroad underpass on 5.114 mi. US. 93, curb and gutter at Twin Springs underpass, Twin Falls Co. Bids Dec. 13. CD 11/29.

American Pipe & Constr. Co., 518 N. E. Columbia Blvd., Portland, Ore., CA **$111,983,** 24- to 60-in. steel pipe for water sys. expans., TACOMA, WASH. City, City Hall, Tacoma, Wash. W. A. Kunigk, water supt. CD 6/2.

Ranney Method Western Corp., Yakima, Wash. CA **$120,000.** well to produce 5 mgd, YAKIMA, WASH. City, City Hall, Yakima, Wash. Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., engrs. CD 2/14.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,
Grove, Sheperd, Wilson & Kruge of Calif., Inc., 120 Sixth Ave. N., Seattle, Wash. LB **$2,361,255.** (6 bidders) superstructure and portion of substructure for portion of bridge on Eastshore Freeway between Magnolia St. and 17 St., Oakland, Alameda Co. Bids Dec. 14. CD 11/22.

▲† **A. Teichert & Son Inc. and M. J. Bevanda,** P.O. Box 397, Baldwin Park, Calif., CA, **$2,059,896.** Upper Rio Hondo imprv., Valley Blvd. to Rosemead Blvd. River Mile 13.75 to River Mile 11.91, Los Angeles Co., Drainage Area, CIVENG 04-353-56-19. CALIFORNIA U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 22. CD 11/25, under LB.

† **McDonald Brothers,** 2639 La Cienega Blvd., Los Angeles, Calif., LB **$633,104,** special storage and servicing facilities, Sierra Ordnance Depot, HERLONG, CALIF. U. S. Eng., 1209 8 St. Sacramento, Calif. Bids Dec. 16. CD 11/29.

▲ **Ukopina-Polich-Kral & Baker-Anderson Co.**, 201 E. Las Tunas Dr., San Gabriel, Calif., CA **$1,541,262.** West Orange County Feeder exten. of the Colorado River Aqueduct distr. sys. Orange, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern Calif., 306 W. 3 St., Los Angeles, Calif. Bids Dec. 7, awarded Dec. 13. CD 12/13, under LB.

BUILDINGS—LB & CA

Macomber-Brunzell Constr. Co., S. Verdi Rd., Reno, Nev. LB **$415,800.** hospital surgical addn. to Washoe MEDICAL CENTER, RENO, NEV. Washoe Medical Center, Bd. Trustees, c/o Chmn., Mill and Kirman Ave., Reno, Nev. Vhay & Grow, 131 W. Second St., Reno, archts.

Walker & Florence, Forest and Champion Sts., Bellingham, Wash., CA **$577,400** (3 bidders) seven 1-story, steel frame Medical ARTS CENTER buildings, BELLINGHAM, WASH. Doctors' Medical Center, c/o G. W. Bentley, archt., 1130 State St., Bellingham, Wash. CD 11/3, under LB.

▲† **Levitt, Chandler & Co.**, Bellevue, Wash., LB **$2,441,215.** est. $2,561,618 (7 bidders) family HOUSING, Inv. 56-76, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4 Wash. Bids Dec. 15. CD 11/8.

Smith-Campbell Co., 6510 Cherry Ave., Long Beach, Calif., LB, **$718,000.** (10 bidders) West Junior High SCHOOL, DOWNEY, CALIF. Downey Union High School Dist., Downey, Calif. Bids Dec. 8. CD 11/25.

Nylin P. Hurd, 1317 Santiago Ave., Santa Ana, Calif., LB, **$643,000.** (6 bidders) Hazard St. SCHOOL and Cartwright School, GARDEN GROVE, CALIF. Garden School Dist., Garden Grove, Calif. Bids Dec. 8.

Joseph Bettancourt, 125 S. Linden Ave., South San Francisco, Calif., LB, **$554,000.** 2 story HOSPITAL ADDN., SAN PABLO, CALIF. Brookside Hospital, c/o Stone, Mulloy, Marraccini & Patterson, 619 Market St., San Francisco, archts.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Pacific Alaska Co.**, 1515 Center St., Tacoma, Wash. CA **$2,601,272,** underground jet fuel and avgas sys., Elmendorf Air Force Base, Inv. 56-9. ALASKA. U. S. Eng., Anchorage, Alaska. Bids Dec. 9. CD 12/14, under LB.

† **Peter Kiewit Sons Co.**, 1300 Aloha St., Seattle, Wash. CA **$434,248,** airfield and taxiway lighting, and base rocket storage bldg., Air Force Base, Inv. 56-6. GALENA, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Dec. 6, awarded Dec. 9. CD 12/8, under LB.

▲† **Morrison-Knudsen Co.**, Anchorage, Alaska, LB **$1,515,186,** electric power plant with 500 kw generators; airfield taxiway paving and lighting; base rocket storage bldg., operations bldg. addn., at King Salmon Air Force Auxiliary Field, Inv. 56-7. NAKNEK, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Dec. 16. CD 11/23.

CANADA

BUILDINGS—BA

Que., Quebec City—CUSTOMS, IMMIGRATION—BA 1/18—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. substructure for customs & immigration bldg. at Wolfe's Cove, $600,000. Plans deposit $50. E. A. Gardner, c/o owner, ch. archt. CD 2/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Dutton-William Bros. Ltd.**, 116 1st Ave. E., Calgary, Alta., CA Total Est. **$150,000,000.** section of 960-mi. pipeline from Fort St. John, B. C. and Peace River area of Alberta, BRITISH COLUMBIA and ALBERTA Westcoast Transmission Co. Ltd., c/o Canadian Bechtel Ltd., 326 9 Ave. W., Calgary, Alta. Awarded Dec. 8. CD 3/2;
Canadian Bechtel Ltd., Vancouver, B. C., c/o 326 9 Ave. W., Calgary, Alta., CA section of pipeline (British Columbia and Alberta);
R. A. Conyes Constr. Co., 13685 San Pablo Ave., San Pablo, Calif., CA section of pipeline (British Columbia and Alberta);
Mannix Ltd., 332 7 Ave. W., Calgary, Alta. CA section of pipeline (British Columbia and Alberta).

Colonial Constr. Co. Ltd., Shaw St., St. John's, Newfoundland, CA, **$388,575.** air terminal bldg., related work at airport, STEPHENVILLE, NEWFOUNDLAND Dpt. of Transport, Hunter Bldg., Ottawa, Ont. Bids Dec. 14. CD 11/29.

BUILDINGS—LB & CA

Bird Constr. Co. Ltd., Sargent & Erin Sts., Winnipeg, Man., CA, **$591,418** (6 bidders) 3 story PUBLIC bldg. addn., alterations, BRANDON, MAN. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Dec. 14. CD 11/16.

Coles-Jeffrey Constr. Co. Ltd., 175 Exmouth St., Sarnia, Ont., CA, **$657,999.** rein.-con., concrete block HIGH SCHOOL. Indian Rd. and Michigan Ave., SARNIA, ONT. Bd. of Educ., Sarnia, Ont. Bids Nov. 17, awarded Dec. 9. CD 10/21.

▲ **F. H. McGraw & Co.**, 51 E. 42 St., New York, N. Y., CA, **$50,000,000-$75,000,000.** RESIDENTIAL and INDUSTRIAL DEVELOPMENT, TORONTO, ONT. Thorncliffe Park Ltd., 197 Bay St., Toronto, Ont. Crang & Beake, 79 Huntley St., Toronto, archts. Marshall, Macklin & Monaghan, 154 Merton St., Toronto, engrs. CD 10/28.

George Hardy Ltd., 163 Wickstead Ave., Toronto, Ont., CA **$720,626,** 128-suite APARTMENT proj. for aged people, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Oct. 7, awarded Dec. 14. CD 10/19, under LB.

▲ **Leon M. Alder,** 2200 Ward Ave., Ville St. Laurent, Que., CA, **$2,000,000.** 150-200 unit HOUSING Program in suburban Ville St. Michel, MONTREAL, QUE. Vikon Housing, c/o contractor. Ian Martin, 1200 St. Alexander St., Montreal, archt.

▲ **Industrial Leaseholds of Toronto,** 33 Bloor St. E., Toronto, Ont. CA, **$2,000,000** equipped. design and erection, TEXTILE PLANT, ST. JOHNS, QUE. Canadian Chemical & Cellulose Co. Ltd., 2035 Guy St., Montreal, Que. R. M. Sanford, c/o owner, ch. engr. Awarded Dec. 13. CD 10/31, under CA.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲† **Costa Rica**—Bureau P. Rds., Dpt. Commerce, Inter-American Highway Office, 18 and F Sts. N.W., Wash., D. C.,
Empressa Constructora Rafael Herrera, Ltd. and Louis R. Sommer, San Jose, Costa Rica. LB **$4,347,476.** (9 bidders). grading, drainage, crushed gravel or stone surf., bit. surf., 25 bridges, etc. at San Ramon. Proj. 75-56-3A and 75-56-3B of Inter-American Hy. between San Ramon and Nicaragua Border. Bids Dec. 15. CD 11/15.

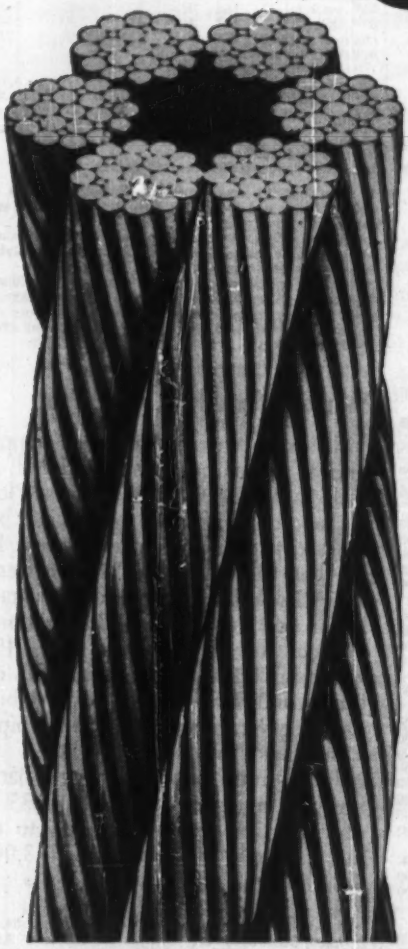
AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **Sanford Constr. Co.**, 161 Lockland Ave., Winston-Salem, N. C. and **Markowitz Bros.**, 5600 E. 4 Ave., Miami 37, Fla. CA Approx. **$4,500,000.** POL storage and distr. sys. at Rota, Moron, Torrejon and Zaragoza for Bureau Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N. W., Wash. 25, D. C. U. S. Air Bases. SPAIN. Brown-Raymond-Walsh, Prime Contractors, Eng. Dpt., Edificio Espana, Madrid, Spain. Bids Dec. 7. CD 12/15, under LB.

HEY!

come on and take a good look at this TIGER BRAND WIRE ROPE



Note the size of wires—large enough to provide plenty of resistance to abrasion yet not so large as to cause a stiff, unwieldy rope. Note the full, firm fiber core—it provides the support necessary for resistance to distortion of rope structure. Note the internal and external lubrication—it helps to prevent corrosion and wear.

These construction features were specially selected for this rope to suit it to rugged hoisting jobs in the construction and mining industries, in factories and mills, in logging operations, and aboard ship. For specific recommendations on the use of this and scores of other carefully designed Tiger Brand Ropes, write for a copy of our free booklet, "The Right Rope for the Job." You will find that there is a good Tiger Brand Rope for every wire rope job. Write for your copy today.

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Unit Prices

Ohio R. Locks, $16.3 Million

As part of the New Cumberland Locks and Dam Project, the U. S. Corps of Engineers, Pittsburgh Distric, awarded contract for the construction of two parallel locks on the Ohio River to The Savin Construction Corporation whose low bid of $16,312,765 is 24% under the engineers' estimate of $21,384,335.

The locks consist of a main chamber, 110 x 1,200 ft, and an auxiliary chamber, 110 x 600 ft. They will replace old locks located in Jefferson County, Ohio.

Although bidders were given four options, namely concrete using portland cement and 3-in. or 6-in. maximum size aggregate and portland and natural cement blend with either size aggregate, all bids were based on the portland cement with 6-in. maximum size aggregate option.

Minimum wage rates set by the U. S. Labor Department range from $1.99 to $3.175 for heavy and highway construction and from $2.025 to $3.65 for building construction.

ASTM class 250 cast iron pipe is used for water lines and extra heavy pipe for sewers.

The seven bidders include:

1C	The Savin Construction Corp., East Hartford, Conn.	$16,312,765
2	Dravo Corp., Pittsburgh 25, Pa.	$17,291,435
7	Guy F. Atkinson Co., S. San Francisco, Calif. & Soo Constr. Inc., Winona, Minn.	$20,246,038

Bids: 10-20-55 Items:	Unit	Quantity	Unit 1C	Prices 2
Cofferdams	ls	job	$760,000	$1,100,000
Excav, common, for locks & appurt struct	cy	2,275,000	0.70	0.80
strip & subgr roadwy	cy	9,700	0.70	0.80
rock	cy	23,600	5.00	7.00
Fill, serv road embkmt	cy	18,000	0.25	0.20
rock	cy	23,600	1.00	2.00
in fndn cells for upper & lower guard walls	cy	8,800	1.00	1.00
all other	cy	155,000	0.30	1.00
RC culv pipe, 18", f&i	lf	102	6.00	9.00
30"	lf	74	10.00	12.00
36"	lf	708	15.00	15.00
48"	lf	1,360	25.00	20.00
Manholes, precast RC, f&i 20' deep	ea	3	1,000	1,200
10' deep	ea	1	750.00	800.00
Side ditch inlets, f&i	ea	2	300.00	400.00
Piling, stl sheet, f&d	lf	214,000	3.00	2.50
Piles, master, f&d	lf	15,300	10.00	7.50
stl brg vertl, 10' @ 42#	lf	61,500	4.50	4.00
12" @ 53#	lf	13,300	5.00	5.00
batter, 12" @ 53#	lf	10,600	5.50	5.00
Aggr, 6" max, for conc in lock wall fndns.*	cy	133,000	16.50	12.00
above fndns.+	cy	284,000	16.90	21.00
Pave, conc, lock approc.	cy	1,490	15.00	70.00
Conc in recess for imbd machy & in pipe trench in lock walls & sills	cy	605	40.00	70.00
Portland cmt, furn	bbl	420,000	4.00	3.50
Steel reinf, f&p	lb	2,200,000	0.13	0.14
Waterstops, rubber, f&p	lf	3,385	4.00	5.00
Filter matl	cy	2,600	4.00	3.50
Stone protection		7,250	1.50	6.00
Tainter valve & fin, f&i	ea	6	32,000	30,000
operating machy	set	6	35,000	28,000
culv bulkhead	ea	4	7,000	5,500
Lock gates, upper, f&i	ea	2	200,000	185,000
lower	ea	2	220,000	225,000
operating machy	set	8	30,000	28,000
Hydr pipg syst, oil pmps oil tank & contr equip	ls	job	235,000	240,000
Compr air pipg syst, compressor & air recvr	ls	job	29,000	28,000
Gas pipg system to operation building	ls	job	1,100	2,000
Serv water pipe syst & p	ls	job	17,000	17,500
Water well, drill & test domest water syst, press tank & hypochlorinator, f&i	ls	job	5,200	6,000
Fuel oil stor tank & pipe syst for standby unit	ls	job	1,500	1,700
Wall armor, f&i	lb	2,460,000	0.30	0.24
Stl castings, f&i	lb	61,500	0.60	0.60
govt furn, i	lb	3,280	0.15	0.15
Met work, misc, f&i	lb	1,010,000	0.35	0.50
Gd fence, f&i	lf	9,400	4.00	2.50
chain link	lf	950	8.00	5.50
Handrail, alum	lf	675	8.00	12.00
Alum grating, f&i	sf	10,000	5.50	5.00
Timber, f&i	Mbf	5.1	650.00	600.00
Floatg moorg bitts, f&i	ea	24	3,000	2,300
Alum rabbet angles, f&i	lf	4,650	2.00	4.00
Opera building, compl	ls	job	45,000	75,000
Power & light syst, complete, f&i	ls	job	226,000	200,000
Diesel electr standy unit complete, f&i	ls	job	22,500	20,000
Culv pipe, CM, 12", f&i	lf	260	4.50	8.00
15"	lf	390	5.50	10.00
24"	lf	126	8.00	15.00
Pipe inlets	ea	6	300.00	300.00
Rock paving	sy	750	7.50	20.00
Bit surf on aggr base	sy	1,910	2.60	3.00
Flagpole, complete, f&e	ls	job	2,500	1,000
CIP, mech jnt, 4", f&i	lf	300	10.00	10.00
CIP, soil, 6", f&i	lf	410	7.00	10.00
Highway gd rail, f&i	lf	150	5.00	5.00
Addnl cost for early constructn of 4 stl sheet pil fndn cells.†	ls	job	10,000	3,000
Service building, compl	ls	job	10,000	20,000
Project indentifien sign	ls	job	1,000	200.00
Field laboratory buildg	ls	job	1,500	3,000

Time allowed: 960 Calendar days
Liquidated damages: $800 per calendar day

** up to final lift (approximately 5 ft) below bottoms of culverts, sills, end foundation cells for guard walls and caissons for upper guide wall.*

**+ in lock wall foundations above the limits established above; in guide and guard walls, and in filling and emptying laterals and cable crossovers.*

**† for upper guard wall adjacent to proposed Ohio Edison Company discharge facilities, including filling and capping cells, removal of temporary concrete caps, provided supports for construction of guard wall over the facilities and all other incidental work.*

Water Pipe for Fish, Fla.

To replace wornout water supply lines to fish rearing ponds at the U. S. Fish Cultural Station in Welaka, Florida, about 3,775 lin ft of pipe are being laid with a minimum cover of 18 in. The U. S. Fish and Wildlife Service, Atlanta, Georgia, awarded contract to the Lee Construction Co., Sanford, Florida, for the low bid of $4,458 which is 52% under the engineer's estimate and 75% under the high bid.

The government furnishes all pipe, fittings and valves.

If the contractor, rather than jacking pipe under the apron of a 35 ft wide concrete spillway, prefers to remove it, he must replace it with 3,000 lb of concrete.

1C	Lee Construction Co., Sanford, Fla.	$4,458
2	Lamb Construction Co.	8,573
4	Columbus Construction Co.	17,744
EE	Richard R. Dittman, regional Engineer, Fish & Wildlife Service, Atlanta, Ga.	9,385

Bids: 11-14-55 Items:	Unit	Quantity	Unit 1C	Prices 2
Pipe, asb-cmt, 18", in place	lf	1,287	$1.00	$2.25
12"	lf	400	0.85	1.65
CI, 18", in place	lf	1,137	1.05	2.00
16"	lf	210	0.90	2.00
14"	lf	376	0.90	1.75
wi, 6", in place	lf	380	1.00	1.50
Fittings, CI, cl D, in place	ton	7.5	100.00	150.00

Time to complete: 90 calendar days
Liquidated damages: $15 per calendar day

'55 Homebuilding Preferences Pinpointed in BLS Survey

The $12,000-$15,000 bracket is the most popular price class for new homes being built in the U. S. That's one of the interesting conclusions of a study just published by the Bureau of Labor Statistics of houses started in the first quarter of this year. About 29% of starts were in this class, and about 23% were in the $15,000-$20,000 range. The two price classes together accounted for more than half of home starts.

Only 10% of new houses were in the $20,000-and-up group, and 34% were under $12,000. Prices were not available for about 4% of the homes surveyed.

The South had the highest proportion of low-cost homes, partly because of climatic conditions. About 51% of all new homes there were under $12,000, and most of these were under $10,000.

• **Medium-price class**—The West and Northeast are the regions favoring the medium-price home costing from $10,000 to $15,000. About 56% of new western homes are in this group, and 53% of northeastern homes. In both areas, most homes are in the upper part of the range.

The North Central states also have a high proportion (41%) of homes in this bracket. But they outdo all the others in the proportion of higher-priced homes. About 45% of new homes in this area are in the $15,000-and-up class, compared with 38% in the Northeast, and 33% in the West.

• **Bedrooms** — The three-bedroom house is far and away the most popular size. The national percentage is 68%, with not much regional variation. Only about 6% of new homes started in the first quarter of this year had four or more bedrooms.

• **Basement**—A majority of houses these days are being built without basements, but regional differences are very wide. Only 41% of the homes surveyed had a full or partial basement. The Northeast was far above average in this respect (88%), and the North Central was 59%.

• **Exterior walls**—Frame construction was most favored for exterior walls, averaging 77%. Masonry construction accounts for 20%, although it ran about 37% in the South. Among types of frame construction, brick facing averaged 18% (higher in the North Central and South). Brick-and-wood facing came to 8.5% (but far above this average in the Northeast). Wood facing was most popular, used on 29% of all new homes.

Kaiser Rejuggles His Empire To Get the Benefit of a Loss

For tax reasons, Henry Kaiser has decided to let the tail of his corporate empire wag the dog. The privately-owned engineering and construction firm, Henry J. Kaiser Co., will become a wholly-owned subsidiary of ailing Kaiser Motors Corp., through an exchange of stock.

Kaiser Motors lost $80 million in the years 1951 through 1954, and this can be used at a tax offset against profits of merger companies. Kaiser Motors will become Kaiser Industries Corp., and present outside stockholders will end up with "not less than" 4½% of the stock of the new firm. Through another subsidiary, Willys Motors, Inc., Kaiser Industries will keep on making jeeps and commercial vehicles, and will also operate in the electronics industry and as a maker of aircraft components.

Henry J. Kaiser Co. now owns 37% of Kaiser Motors stock, plus 30% of Permanent Cement Co., 80% of Kaiser Steel Corp., 37% of Kaiser Aluminum & Chemical Corp., plus controlling interests in other Kaiser-managed firms.

Jacksonville Pushes Plans To Complete Its Expressway

The Jacksonville (Fla.) Expressway Authority plans to sell a $65-million bond issue in April to complete the expressway project, which by-passes the city to the west.

About $28 million would be used to retire the original 1950 bond issue, which along with gas-tax money has financed two toll bridges, about five miles of expressway and some two-lane roads. The rest of the issue, plus about $12 million in gas-tax funds, would go to build about 12 more miles of expressway and improve city streets. However, there's a hitch to refunding the 1950 issue. It can't be called for redemption until 1960 without consent of holders of 75% of the bonds.

• **Traffic study**—New traffic studies made by Coverdale & Colpitts indicate that revenue of the two toll bridges will double by the end of 1969. They are now running well over pre-construction estimates. But the study indicates that more toll revenue is needed to meet debt charges on the larger bond issue. The traffic engineers suggest: (1) another toll bridge, (2) boosting the present toll for occasional passenger-car users and trucks, and (3) lowering it slightly for frequent commuters.

Battle at Byers

Rebel group seeks to oust present managers

There'll be a hot time next month when stockholders of A. M. Byers Co., wrought-iron pipe producer, meet for their regular annual meeting Jan. 26.

An insurgent group of stockholders, headed by Sidney Newman of New York, is seeking to oust the present management of the Pittsburgh concern. The group is also seeking to block a proposed merger between Byers and General Tire & Rubber Co., unless General is willing to pay at least the book value of $57 a share for Byers stock, which now sells for about $32 on the market. Not long ago, the same group blocked a merger between Byers and Erie Forge & Steel Corp.

• **One up**—However, this week Alfred B. Drastrup, president of Byers, announced that his management group had just acquired a block of about 20% of the firm's stock from owners who had previously been "antagonistic." He said the acquisition of this stock was sufficient to block a special meeting before Jan. 26 that had been called for by the Newman group. Newman, however, is still confident that he can throw out the management at the January meeting. He says he has about 40% of the stock lined up already, "without any solicitation."

The merger with General Tire could go through no matter which group comes on top at Byers. And industry observers believe it would be a logical move. General is now a big producer of plastic film and sheeting. If it acquired Byers, it could make plastic pipe and sell it through Byers' sales force.

(*B&F continued on page 100*)

Japanese Plywood Coming In At Fair Price, Says Treasury

American producers of plywood have been blocked in their attempts to have a special tariff imposed on plywood shipments from Japan.

The Treasury Department ruled last week that Japanese plywood being imported into this country was being sold at fair value, and not being "dumped." Under the law, if the Treasury finds that imports to the U. S. are being sold below fair value, it can impose a special tariff to make up the difference.

Back in October, the Treasury issued the same ruling on plywood imports from Finland.

Ideal Follows Other Majors In Boosting Cement on Jan. 1

Ideal Cement Co., one of the major U. S. producers, has followed other majors by announcing a 15 cents per bbl price increase effective Jan. 1. The boost will go into effect at all but three of Ideal's 22 plants. The exceptions are Gold Hill, Ore.; Redwood City, Calif., and San Juan Bautista, Calif., where increases are slated for April 1.

President Cris Dobbins of Ideal says the increase was made after a careful study of rising costs and his company's expansion program.

Illinois Toll Road Delayed Once More by Legal Troubles

Construction of the 193-mi Illinois Toll Road, biggest turnpike in history, may be delayed once more by another legal snarl.

The latest suit may indefinitely postpone delivery to underwriters of the $415-million bond issue, which has already been sold. Filed last week by a property-owner along the projected route, this petition charges that the sale contract to an underwriting syndicate headed by the Chicago investment houses of Glore, Forgan & Co. and Halsey, Stuart & Co. is void because these firms also acted as financial advisers on the issue to the Illinois Toll Road Commission. The suit also claims that part of the bond issue was paid for in the form of Treasury securities, instead of in cash as required by law.

The Steel Shortage Delays Ohio's Big Highway Program

Because of delays in delivery of steel of up to a year, Ohio's ambitious highway program has run into difficulties.

State Highway Director S. O. Linzell says the steel shortage came to his attention when he started to investigate why so many highway contractors were failing to bid on some of the larger projects. He found out that some contractors doubted they could meet completion deadlines as set by the Highway Department.

Linzell said highway work won't come to a stop. On many projects, contractors can do a lot of work not requiring steel.

Business Briefs . . .

• **U. S. Steel Corp.** plans to add about 2,500,000 tons of ingot capacity within the next two or three years. About 1,500,000 tons of this expansion is scheduled for the Chicago area. The company has not said whether any of this program would be for structural steel.

• **$150-million pipeline**—Texas Eastern Transmission Corp. has asked the Federal Power Commission for permission to build a new 30-inch pipeline from Beaumont, Texas, to the vicinity of McAllen, Texas, on the Mexican border. It also wants to expand capacity of its present 30-inch line from Beaumont to New Jersey. This would cost about $150 million and would increase pipeline capacity by about 250,000,000 cu ft daily. The company has recently contracted with a Mexican firm for delivery of about 200,000,000 cu ft daily at the border.

• **Big power plant**—Public Service Electric & Gas Co., New Jersey, plans a $129-million power plant for completion in 1958. It will provide about 550,000 kw of capacity to supply fast-growing Bergen county.

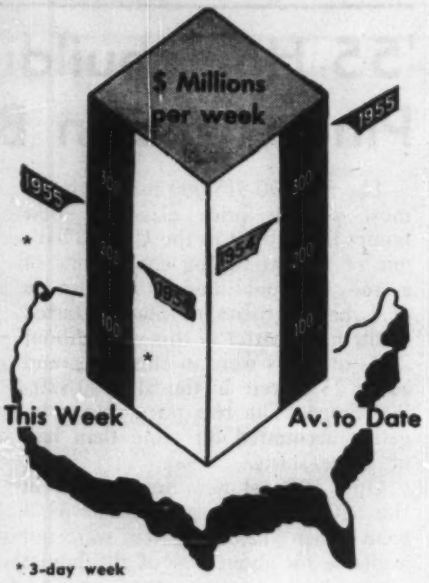
• **Johns-Manville Corp.** stockholders will be asked next spring to increase authorized shares from 4,500,000 to 25,000,000. Board chairman L. M. Cassidy says the increase is for the purpose of putting the company in a position to take advantage of future growth opportunities. In other words, it would make stock available for future stock mergers.

• **Texaco expansion**—Texas Oil Co. plans to spend $1.5 billion over the next five years for expansion. Spending next year is scheduled at a record level of $325 million.

• **Sperry Rand Corp.** will build an advanced flight research center and factory in Phoenix, Ariz. The plant will make electronic equipment for military and civilian aircraft.

Activity This Week

As reported to ENR
(In millions of dollars)



* 3-day week

Amount of contracts let

(millions of dollars)

	This Week*	Cumulative 52 wks 1955	1954	% chge
By Ownership				
Federal	$5.2	$1,634.8	$1,285.7	+27
State and municipal	98.6	5,415.0	5,001.0	+8
Total public	103.8	7,049.8	6,286.7	+12
Total private	148.0	11,647.1	8,125.3	+43
U. S. Total	$251.8	$18,696.9	$14,412.0	+30
By type of work				
Waterworks	$9.6	$314.1	$245.4	+28
Sewerage	4.1	402.0	387.9	+4
Bridges	15.5	545.1	510.3	+7
Highways	41.1	2,136.5	1,918.8	+11
Earthwork, waterways	0.4	546.1	338.7	+61
Buildings:				
Public, excl. housing	29.3	1,740.6	1,762.4	−1
Public housg.	...	246.4	255.1	−3
Private housg.	56.2	6,138.4	4,231.8	+45
Commercial	25.0	1,655.5	1,420.3	+17
Industrial	63.4	2,950.9	1,876.6	+57
Unclassified	7.2	2,021.3	1,464.7	+38
U. S. Total	$251.8	$18,696.9	$14,412.0	+30

* 3-Day Week

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)

	Week of Dec. 22	Cumulative 51 Wks 1955	% Chge '54-'55
Corporate securities	$9.3	$3,587.7	+39
State and municipal:			
All except housing	120.8	4,845.2	−11
Housing	5.1	102.2	+12
Federal loans	2.1	126.7	+11
Federal aid	...	853.5	+27
Total nonfederal	$137.4	$9,515.2	+7
Federal appropriations:			
In U. S.	...	$3,379.7	+63
Outside U. S.	...	84.6	+155
Total new capital	$137.4	$12,979.5	+18

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	12/22	673.42	323.71	141.17
	12/1†	673.13	323.57	141.11
Building cost	12/22	478.99	258.93	136.16
	12/1†	478.70	258.77	136.08
Volume	Nov.	561	228	162
	Oct.	628	255	182

† Official ENR Indexes for December

Business Investment Holds Key To Both Growth and Stability

What federal tax policy will best promote both growth and stability in the American economy? The Joint Economic Committee of Congress has been asking this crucially important question in public hearings. This editorial suggests one vital part of the answer.

The proposition advanced here is that—

> Tax policy must encourage a continuing high level of business investment in new plant and equipment, because such investment makes a special contribution to *both* economic growth and economic stability.

Growth Needed for Security

We must have both growth and stability.

A vigorous economic growth is essential to our national security. As Congressman Wilbur D. Mills said in launching the Joint Committee's hearings, "The present complexion of world affairs places a premium upon strength and growth in our national economy." Growth is likewise a major ingredient of a healthy domestic economy. Growing enterprises and growing communities offer far more opportunities for satisfying careers than those which are not growing.

A reasonably stable economy, without violent ups and downs, is also essential to our national welfare. Extravagant booms and their more or less inevitable result, severe depressions, waste labor and resources and cause great human misery. Both major political parties have accepted the obligation imposed by the Employment Act of 1946, that the federal government work to maintain high and stable employment.

There is general agreement that **the key to economic growth is investment in new plant and equipment.** Growth depends decisively on new facilities to increase production, and also to produce new and better products in new and better ways. At the same time, new plant investment provides employment for the important, and well-paid, one-fourth of our industrial workers who manufacture and build new production facilities. So if the process of business investment is kept on an even keel, the result is not only growth but also stability in a substantial sector of our economy.

But authorities disagree on the possibility of maintaining a high level of business investment for any great length of time. Some fear that it will lead to an excess of producing capacity and the glutting of markets, with recession or depression not far behind.

The history of our country offers some basis for the fear that it is dangerous to maintain a very high level of business investment. There have been times when the economy has suffered under the weight of excess producing capacity. **This fear, however, has been made obsolete by the recent course of our economic history which, in its earlier phases, nourished the fear.**

The World Has Changed

Here are some of the major considerations, cited at the Joint Committee hearings, which support the conclusion that we not only *can have* a high level of business investment and economic stability but that we actually *need* a high level of such investment to assure stability.

(1) Over the next 20 years our population is expected to increase by about one-third. But most of the population increase will come in age groups younger or older than normal working ages, and people will probably work fewer hours per week. Thus hours worked are not expected to increase more than 15%. Consequently, we must have a relatively large increase in the amount of production equipment per worker if our standard of living is not to suffer. This means a high level of new investment.

(2) About half of our present business investment goes to replace worn-out equipment, rather than to expand capacity as was true during the early stages of our industrial development.

(3) Thanks largely to the impact of organized research—for which we as a nation now spend about $4 billion a year—a large share of capital investment now goes to provide new products and new processes, rather than to expand existing capacity.

These developments make it unlikely that we shall develop the burden of excess capacity that plagued the economy in earlier periods. **Moreover, most capital investment plans are now made on a long-range basis. Companies are building facilities to anticipate their needs for several years ahead.** This increase in long-range planning has reduced the disturbing effects of temporary shortages and excesses in producing capacity.

The record of recent years speaks for itself. Business spending for new plant and equipment in 1955 was over $29 billion. This continued the high level of investment that has been maintained for the past ten years—a decade remarkable for both impressive growth and gratifying stability. A McGraw-Hill survey of preliminary plans for 1956 indicates another year of increasing investment, and expanding business activity.

Tax policy, to be successful, must consider this impressive contribution of business investment to both growth and stability.

Of course, the level of investment depends on many factors other than federal tax policy. The degree of business confidence is important. So is the strength of consumer markets. So is the attitude of organized labor toward the use of more efficient machinery. But tax policy is a crucially important factor. And it is becoming more so with new developments in our changing economy. These developments indicate that tax policy **must be geared to foster a high level of business investment, if the dual objectives of economic growth and economic stability are surely to be attained.**

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

West Coast Strike Drags On

Rock producers shun arbitration after teamsters reject offer of a 30-cent boost without providing for pensions

Union rejection of a 30-cent package offer and employer unwillingness to arbitrate on a "blank check" basis has thrown the costly Southern California teamsters' strike into a deeper stalemate.

Called on Oct. 3, when negotiations between the teamsters union and 29 members of the Southern California Rock Products Association broke down, the strike has stalled operations on millions of dollars worth of construction (ENR Oct. 27, p. 109). Biggest area of disagreement is the teamsters' demand for a pension contribution (now in litigation) which would be administered under the Western Conference of Teamsters Pension Plan instead of locally.

Last week, the air was full of recrimination. The teamsters charged employers with "continuous stalling tactics" and threatened to call for a federal investigation of the refusal to arbitrate. Employers denounced what they called a hold-out "for nothing less than a Seattle-run pension plan" and said they wouldn't buy "a pig in a poke."

• **Union rejection**—The present tangle stems from the union's rejection by a vote of 1,173 to 233 early this month of a 30-cent package settlement offer—a three-year contract with an immediate 15-cent wage increase retroactive to Oct. 1, 10 cents more next Oct. 1 and another 5 cents April 1, 1957. Main drawback of the proposal, according to union officials was failure to include any mention of a pension plan.

When the proposal was rejected, the union was charged with failure to act in good faith. In formulating the proposal, some employers understood the union would concede omission of a pension plan for the 30-cent raise, and also understood the offer would be presented as one sponsored by the mediator. The union negotiating committee unanimously approved the proposal. When put before the membership on Dec. 4, the plan was presented, not by the mediator, but as a company offer reportedly opposed by union officials.

Although this was the first company proposal to be submitted to union membership vote, employers had previously proposed a 17-cent wage boost under a three-year contract with provision for a locally administered pension plan, guaranteeing benefits equal or greater than those offered by the teamster pension fund. Employers say that proposal is still open to the teamsters.

• **Arbitration suggested**—It was the existence of this first proposal that made the employers feel arbitration was premature.

California's Governor Knight had already suggested arbitration and the union had accepted the recommendation, which received a cool reception from management. General feeling was that the employers felt a Knight-appointed arbiter would tend to follow labor's viewpoint.

• **Other developments**—Since the union rejection of the company proposal, two additional mediators have been appointed. This was apparently due to bad feeling between the companies and the original mediator, stemming from the Dec. 4 fiasco.

In the meantime, the employers have concluded a new three-year contract with the operating engineers. It provides for wage increases (retroactive to Oct. 1) of 15, 16 and 17 cents for each of three classifications, plus an additional boost of 10 cents next Oct. 1 and another increase of 3, 4 and 5 cents in March 1957. Wages and working rules can be reopened in October 1957. No pension issue was involved. Operating engineers (who did not strike) are still idled by the teamster strike and won't return to work until that is settled.

AFL-CIO Policymaking Team

Most of the major decisions with which the AFL-CIO will be faced during the up-coming months will be made by the new federation's powerful 29-member Executive Council (see chart) on which the building trades have five representatives.

Of these five, four are past or present general or international presidents (Bates, bricklayers; Hutcheson, carpenters; Beck, teamsters, MacGowan, boilermakers) and one is an international secretary (Keenan, electricians).

(*Continued on page 104*)

AT THE HELM are (first row, l. to r.) Harry Bates, James Petrillo, David Dubinsky, Matthew Woll, Wm. Schnitzler, George Meany, Walter Reuther, George Harrison, David McDonald, James Carey. Second row—A. P. Randolph, M. A. Hutcheson, Dave Beck, Al Hayes, Wm. Doherty, Charles MacGowan, Wm. McFetridge, A. L. Spradling, Jacob Potofsky, Willard Townsend. Third row—Joseph Keenan, O. A. Knight, Joseph Beirne, Richard Walsh, L. Buckmaster, Herman Winter, Emil Rieve, Joseph Curran, Wm. Birthright.

Name	Union and Old Affiliation	Vice Pres.	Member Exec. Comm.	Member Exec. Council
Harry C. Bates	Bricklayers (AFL)	*	*	*
James C. Petrillo	Musicians (AFL)	*		*
David Dubinsky	Ladies' Garment Workers (AFL)	*		*
Matthew Woll	Photo-Engravers (AFL)	*	*	*
William Schnitzler	AFL-CIO Sec. Treas.		*	*
George Meany	AFL-CIO Pres.		*	*
Walter Reuther	UAW-CIO (and old CIO Pres.)		*	*
George M. Harrison	Railway Clerks (AFL)	*	*	*
David J. McDonald	Steelworkers (CIO)	*	*	*
James B. Carey	Electrical Workers-CIO (and old CIO Sec. Treas.)	*	*	*
A. Philip Randolph	Sleeping Car Porters (AFL)	*		*
Maurice A. Hutcheson	Carpenters (AFL)	*		*
Dave Beck	Teamsters (AFL)	*		*
Al J. Hayes	Machinists (AFL)	*		*
William C. Doherty	Letter Carriers (AFL)	*		*
Charles J. MacGowan	Boilermakers (AFL)	*		*
William L. McFetridge	Building Service (AFL)	*		*
A. L. Spradling	Street and Electric Railway (AFL)	*		*
Jacob S. Potofsky	Clothing Workers (CIO)	*		*
Willard S. Townsend	Transport Service (CIO)	*		*
Joseph D. Keenan	Electrical Workers (AFL)	*		*
O. A. Knight	Oil and Chemical Workers (CIO)	*		*
Joseph A. Beirne	Communication Workers (CIO)	*		*
Richard F. Walsh	Theatrical Stage Employees (AFL)	*		*
L. S. Buckmaster	Rubber Workers (CIO)	*		*
Herman Winter	Bakery and Confectionery (AFL)	*		*
Emil Rieve	Textile Workers (CIO)	*		*
Joseph Curran	Maritime (CIO)	*		*
William C. Birthright	Barbers (AFL)	*		*

Hutcheson and Beck are also vice presidents and Executive Council members of the Building and Construction Trades Department.

Established as the governing body of the federation between its biennial conventions, the council is required to meet at least three times a year and is constitutionally granted broad and comprehensive powers. It is given an affirmative responsibility to assist in organization of the unorganized, to guide the legislative program of the AFL-CIO and to stamp out communism and corruption (by suspension of affiliates if necessary).

In shaping the policies of the federation, the Executive Council is directed to adhere to the principles of equality and to recognize as necessary and desirable the co-existence of craft and industrial unions.

Wellspring of the council are the 27 new AFL-CIO vice presidents (17 from the AFL and 10 from the CIO). Under the constitution, all are automatically members of the Executive Council.

From their ranks also come six members of the eight-man (all "Who's Who") executive committee, which meets every two months to advise and consult with the president (Meany) and secretary-treasurer (Schnitzler) on policy matters. Here again, the building trades are represented by the bricklayers' Harry Bates, who, like Woll and Harrison, has helped to guide the labor movement for nearly half a century. With them on the committee are the younger and dynamic voices of the old CIO—Walter Reuther, James Carey and David McDonald.

Lower Compensation Rates Slated for Several States

Lower premium rates for workmen's compensation insurance are in the offing for employers in several states.

Notable improvement in compensation experience has already enabled Rhode Island to approve new premium rates, which were effective early in December. Although the overall rate level remains about the same, contractors received a 20.7% reduction.

New rates, effecting an average reduction of 5.7%, will become effective Dec. 31 in South Carolina. Insurance Commissioner Kelly has estimated that the new rates will save $400,000 for employers.

Although insurance companies in Massachusetts have requested a 2.8% increase in compensation premiums, some industries would pay less under the proposed rates. Contractors would get an 8% reduction.

Meanwhile, California's State Employment Director has announced that the present low unemployment insurance tax rate will remin effective for 1956.

Picketing at Common Site Upheld by Federal Court

A Federal Court has ruled that the Taft-Hartley Act does not ban picketing which incidentally affects employes of neutral construction firms not involved in a labor dispute.

The decision reversed an earlier ruling of the NLRB, stemming from a strike called at the Campbell Coal Co. in Atlanta, Ga., by sales drivers, helpers and construction drivers of the teamsters union.

Protesting discharge of a number of truck drivers, the union had picketed two of the company's ready-mix concrete plants. Pickets also followed Campbell's trucks to various construction projects where the union had no dispute with the contractors. It was this phase of the picketing which the NLRB said was illegal, although the pickets did not converse with the construction workers.

Holding that such cases cannot be decided under any rigid rule, the Court of Appeals said that the Taft-Hartley Act "does not contain a provision which condemns concerted activity of employees with respect to their own employer merely because it occurs at a place where it comes to the attention of and incidentally affects employees of another, even where the activity could be carried on at a place where the primary employer alone does business."

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A copy of this quick-reading, 8-page booklet is yours for the asking. It contains many facts on the benefits derived from your business paper and tips on how to read more profitably. Write for the "WHY and HOW booklet." Room 2710.

McGRAW-HILL PUBLISHING COMPANY
330 West 42nd St., New York 36, N. Y.

One of a series of advertisements prepared by THE ASSOCIATED BUSINESS PUBLICATIONS

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch. (Effective Jan. 1956 the rate will be $2.10 per line)

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: January 12, 1956

Delaware River Port Authority Administration Building Camden, New Jersey

BRIDGE ROADWAY
TRAFFIC LANE MARKER STRUCTURES
CONTRACT NO. 8

Sealed bids will be received for TRAFFIC LANE MARKER STRUCTURES OVER THE WALT WHITMAN BRIDGE ROADWAY between Front Street, Philadelphia and Newton Creek in Gloucester, New Jersey, known as Contract No. 8, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:30 P.M., (Eastern Standard Time), January 12, 1956, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $10,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
Executive Director

Bids: January 10, 1956

Construction of 12-Inch and 16-Inch Diameter Water Supply Mains Arlington County, Virginia

ADVERTISEMENT FOR BIDS

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of 12 and 16 inch diameter water supply mains as described below, will be received by the Purchasing Agent in Room 213, in the Court House Building at Arlington County, Virginia, until 11:00 A.M., Eastern Standard Time, on January 10, 1956, and there publicly opened and read immediately thereafter.

STAGE II—CONTRACT 3
CONSTRUCTION OF 12 & 16-INCH DIAMETER WATER SUPPLY MAINS & APPURTENANCES.

1. Location: The work is located in Arlington County, Virginia, on public streets from Old Dominion Drive to N. Harrison Street and 26th. Street N. to N. Inglewood Street.
2. Type of Work: The principal items of work include the following:—Approximately 6,500 linear feet of 12-inch cast iron water pipe, 4,000 linear feet of 16-inch cast iron water pipe, together with miscellaneous gate valves, manholes, hydrants, connections to existing mains, etc.
3. Copies of Plans and Specifications, Information for Bidders, Bid Forms and other bidding and contract documents may be examined at the office of the Chief Engineer of the Water Division, County Court House, Arlington, Va.; at Dodge Reports, 900 F. Street, N.W., Washington, D. C. and at the office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH ST., NEW YORK (7), N. Y.
4. Copies of Plans, Specifications and Bidding Documents, may be obtained from the Purchasing Agent in Room 213, Court House Building at Arlington, Virginia upon deposit of THIRTY ($30.00) DOLLARS PER SET.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, WITHIN THE SAME PERIOD, will be Fifty (50%) percent of the deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated.

All bids must be made on the form contained in the Contract and Specifications. Contractors, whether resident or non-resident in Virginia will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Per Cent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: H. G. Bonney
Purchasing Agent

Bids: January 10, 1956

Contracts 420, 421 and 438

CONTRACT 420—ELECTRIC LIGHTING EQUIPMENT
CONTRACT 421—PLUMBING EQUIPMENT
CONTRACT 438—GASOLINE-ENGINE GENERATOR SETS

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 10, 1956, for each of Contracts 420, 421 and 438, as follows:

CONTRACT 420, for furnishing, delivering, installing and testing electric lighting equipment, complete in every respect, for the Neversink intake chamber, the Downsville release water chamber, and the East Delaware intake and outlet chambers of the Delaware system, located in the Town of Neversink, Sullivan County, and Town of Colchester, Delaware County, New York.

CONTRACT 421, for furnishing, delivering, installing and testing plumbing equipment and appurtenances for the Neversink intake chamber, located in the Town of Neversink, Sullivan County, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware County, New York.

CONTRACT 438, for installing gasoline-engine generator sets and appurtenances and performing miscellaneous work at the West Branch effluent chamber, located in the Town of Carmel, Putnam County, and at the Kensico South effluent chamber, located near Valhalla, Westchester County, New York.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., of each of the three contracts can be obtained in the Chief Clerk's office, Room 1317, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners. Board of Water Supply; BETTY COHEN, Acting Secretary.

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SUperior 1-7000
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W. SULLIVAN
D. COSTER

PHILADELPHIA, 3
17th & Sansom St.
RIttenhouse 6-0670
E. MINGLE
J. WILLIS

ST. LOUIS, 8
3615 Olive St.
JEfferson 5-4867
H. BOZARTH

SAN FRANCISCO, 4
68 Post St.
DOuglas 2-4600
R. ALCORN

OFFICIAL PROPOSALS

Bids: January 17, 1956

Power Authority of The State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF FIXED HOISTS FOR MASSENA INTAKE
SPECIFICATIONS NO. PA-5-15053
ST. LAWRENCE CONTRACT NO. P-31

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture and furnishing of eight (8) Fixed Hoists for Massena Intake and delivery thereof f. o. b. destination in the following ways:

(1) If brought in person, on the day of receiving bids until 10:30 A. M. Eastern Standard Time on the 17th day of January, 1956, 270 Broadway, Hearing Room C on the sixth floor, New York 7, New York.

(2) If mailed in, until 10:15 A. M. Eastern Standard Time, on the 17th day of January, 1956, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for eight (8) fixed hoists and accessories.

Bids will not be restricted to American manufacturers.

Plans, specifications and proposal forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty ($20.00) Dollars per initial set of contract documents and Ten ($10.00) Dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
PA-5-15053 GENERAL MANAGER

Bids: January 24, 1956

Contract NYA-650.004

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
PERIPHERAL TAXIWAYS

Sealed proposals for the construction of paving and utilities for the peripheral taxiways at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, January 24, 1956, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1112. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 29, 1955

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

York 11, N. Y., until 2:30 P. M. on Tuesday, January 24, 1956, at which time said proposals will be opened and read in Room 1108.

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THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 29, 1955

Bids: January 24, 1956

Contract HP-120.012

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
HOBOKEN-PORT AUTHORITY PIERS
ALTERATIONS TO HEADHOUSE

Sealed proposals for the alteration and rehabilitation of the Headhouse at the Hoboken-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 24, 1956, at which time said proposals will be opened and read in Room 1108.

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THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, December 29, 1955

U. S. Government

Government of Iraq The Grain Board Ministry of Economics Construction of Concrete Grain Silos and Appurtenant works at Hillah and Mosul Iraq. The Iraqi Grain Board, invites separate or combined tenders for the construction of two concrete grain silos and appurtenant structures at Hillah and at Mosul, Iraq, all in accordance with the specifications, schedules, drawings and addenda covering the work. A unit price type of contract covering all the required work at each of the two sites or a combination of the two contracts will be awarded to the successful tenderer. The work to be performed generally is as follows: Hillah—1—Concrete Grain Silo of 8,300 ton capacity complete with working house. 2—Pile foundations for silo and working house. 3—Housing units for 20 employees and their dependents. 4—Site improvements including railroad spurs, access area paving, electric, water and sewer lines, grading and walkways. Mosul—1—Concrete Grain Silo of 12,050 ton capacity complete with working house. 2—Housing units for 20 employees and their dependents. 3—Site improvements including railroad spurs, access area paving, electric, water and sewer lines, grading and walkways. Copies of the documents for tender may be inspected at the following addresses on or after 31st December 1955. (a) The office of the President of the Grain Board at Abu-Nawas Street, Baghdad. (b) Iraqi Embassies in Washington, London and Paris; and Iraqi Legations in Bonn, Brussels and Rome. Copies of the documents for tender may be obtained on or after 31st December 1955 on the payment of ID.35/— for each silo or the equivalent at: (a) The office of the President of the Grain Board, Abu-Nawas Street, Baghdad. (b) The offices of the Consulting Engineers, Tippetts-Abbett-McCarthy-Stratton at: 5 Merlin Street, P.O. Box 42, Athens, Greece, or 62 West 47th Street, New York 36, N. Y. U.S.A.The tenders shall be in English and must be accompanied by a preliminary deposit as provided for in the Contract Documents. Tenders shall be enclosed in a sealed package and endorsed clearly on the outside with the words, "TENDER FOR THE CONSTRUCTION OF THE GRAIN SILO AND APPURTENANT STRUCTURES AT HILLAH, IRAQ" or "TENDER FOR THE CONSTRUCTION OF THE GRAIN SILO AND APPURTENANT STRUCTURES AT MOSUL, IRAQ". In case a combined tender is submitted both volumes and bonds must be enclosed in one sealed package. Tenders shall be addressed to the President of the Grain Board, Abu-Nawas Street, Baghdad, Iraq, and shall be delivered to the Offices of the President of the Grain Board in Baghdad on or before 12 o'clock noon local time on 31st March 1956. If sent by post, tenders shall be registered but the tenderers must assure themselves of delivery to the Grain Board prior to the date set for opening of bids. Tenders not submitted within the time specified or not accompanied by a receipt of deposit as required by the Contract Documents will not be considered. During the time allowed for tender, the Grain Board reserves the right to amend the documents for the purpose of clarification or to reflect modifications in the design or in the contract conditions. Any such amendments will be in the form of formal addenda distributed to the prospective tenderers. The Grain Board does not bind itself to accept the lowest or any tender. The Grain Board will invite tenders for the construction of a Grain Silo at Arbil which will be identical to the Hillah Silo except with respect to foundations and site arrangements. The Arbil silo will be advertised as soon as these two aspects are determined. N. A. Umari, President of the Grain Board.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4475) will be received at Rupert, Idaho, until February 8, 1956, for furnishing labor and materials for Heyburn Substation, Minidoka Project, Idaho. Location in Heyburn, Idaho. Principal items are 900 cu. yds. excavation; 150 cu. yds. concrete; furnishing and erecting 75,000 lbs. steel structures; constructing service building; installing 27 transformers; and other work. Completion time 260 days. For particulars, address Bureau of Reclamation, P. O. Box 937, Boise, Idaho; Rupert, Idaho; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4595) will be received at Albuquerque, New Mexico, until January 25, 1956, for furnishing labor and materials for Channel Prototype Channelization of Rio Grande, Casa Colorado Area, Middle Rio Grande Project, New Mexico. Location near Belen, New Mexico. Principal items are clearing floodway channel; furnishing and erecting 2,400 metal jetties; and other work. Completion time 130 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, December 14, 1955. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 1:30 p.m., E.S.T., JANUARY 13, 1956, for Project 2Z2, Blue Ridge Parkway, Swain County, North Carolina. Grading, draining, base course, the stockpiling of additional base course material and other work 1.836 miles easterly from Ravensford. The approximate quantities of the more important items are as follows: 312,400 cu. yd. Excavation, 60,000 tons Crushed Gravel or Crushed Stone and 2,950 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or at the address given above. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSALS

Bids: January 12, 1956

Delaware River Port Authority Administration Building Camden, New Jersey

LIGHTING AND ELECTRICAL WORK
CONTRACT NO. 7

Sealed bids will be received for LIGHTING AND ELECTRICAL WORK FOR THE WALT WHITMAN BRIDGE STRUCTURE AND TOLL PLAZA, PHILADELPHIA, PENNSYLVANIA, for the new bridge between Packer Avenue, Philadelphia and Gloucester, New Jersey, known as Contract No. 7, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:30 P.M., (Eastern Standard Time), January 12, 1956, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $100,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
Executive Director

Bids: Early 1956

Road Construction in Ecuador

Bids will be requested early 1956 for construction of Nobol-Portoviejo Road in west part (lowlands) of Ecuador. Contract includes grading, structures, flexible base and asphalt surface on about 150 kilometers of road. Terrain is about ⅓ flat, ⅓ rolling and ⅓ hilly. Estimated cost about 4 million dollars, partially financed by International Bank Loan. Due to rainy season usually December 20th to May 1st, interested contractors should inspect terrain immediately. For further information write to:

César Durán Ballén
General Superintendent, Comitè de Vialidad
P. O. Box 4182
Guayaquil, Ecuador

U. S. Government

United States Department of Commerce, Bureau of Public Roads, December 15, 1955. SEALED BIDS will be received at the office of the Inter-American Highway Office, Bureau of Public Roads, Room 4009, General Services Building, Washington 25, D. C., until 2:00 p.m., e.s.t., January 19, 1956, for construction of Rama Road Project R-3A in the Republic of Nicaragua. The project begins at Muhan about 23 miles east of Santo Tomas and extends easterly toward Rama for approximately 15 miles. Bidders will be limited to United States or Nicaragua firms with a satisfactory record of performance on highway construction in the United States of America or in the Republic of Nicaragua. The approximate quantities of the major items of work are: 57 Hectares Clearing and Grubbing 707,000 cubic meters Unclassified Excavation, 50,000 cubic meters Selected Borrow Base, 2,400 cubic yards Class "A" Concrete, 322,000 lbs. Reinforcing Steel, 480,000 lbs. Structural Steel and 8,000 linear feet Nestable Bituminous Coated Corrugated Metal Culvert Pipe (from 24" to 72"). Special conditions of work performed by U. S. Government in foreign areas apply as well as local laws. Plans, Specifications and Proposal Forms are available upon request at the address given above, or at the Inter-American Highway District Office, Bureau of Public Roads, 516 Avenida Roosevelt, Managua, Nicaragua. C. D. Curtis, Commissioner.

EMPLOYMENT OPPORTUNITIES

(Continued on following pages)

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Estimator — Fully qualified and experienced building estimator to locate in Texas, experienced in preparing estimates on large building projects. Position permanent with excellent opportunity and salary commensurate with ability. Please furnish experience record, training, salary desired, telephone number and address in first response. P-8555, Engineering News-Record.

Civil Engineers, Designers, Draftsmen experienced in the design of sewers, pumping stations, sewage treatment plants, water supply systems, structural and hydraulic design, hydraulic computations, specs. O'Brien & Gere, 400 E. Genesee St., Syracuse, N. Y.

Wanted: Bridge & Highway designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-8381, Engineering News-Record.

Wanted — Superintendent, Free to Travel, capable of estimating and constructing sewage disposal plants, sewerage interceptor systems, water filtration and distribution systems. State age, education and proposition desired. P-8745, Engineering News-Record.

Structural & Misc. Steel Detailer—Must be experienced, excellent climate, good housing conditions, top wages. Give full particulars. Tucson Iron Works, Box 1949, Tucson, Arizona.

Civil Engineer, Engineering Department of progressive city. Salary $5040-$5940 contingent upon experience. Information and brochure available from Personnel, Municipal Building, Hamilton, Ohio.

Having opening for well qualified foreman and superintendent in Florida. Apply to P-8737, Engineering News-Record, giving complete background, references, salary desired, etc.

Superintendent wanted by concrete and asphalt paving contractor in Maryland—Virginia—D.C. area. Unusual opportunity. P-8735, Engineering News-Record.

Wanted: Engineer, Inspector, large sewer, state full qualifications and experience, reference and salary required. Location Northern Indiana. P-8756, Engineering News-Record.

Wanted: Young engineer for quantity take-offs of various types of construction, and desirous of advancing in the estimating branch of a well known construction company with offices in New York City. Some experience preferable. P-8757, Engineering News-Record.

EMPLOYMENT AGENCIES

Wanted Engineers, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E. and Ind., also Teachers and Chemists, Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

Available immediately construction engineer (Electrical) for overseas 44, single, 6 years experience design and inspection heavy construction and buildings. PW-8594, Engineering News-Record.

***When Answering* BOX NUMBERS . . .**

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

ENGINEERS

STRUCTURAL
HIGHWAY
ELECTRICAL

for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY

PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE

INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
55 Liberty St. New York 5, N. Y.

INDUSTRIAL ENGINEERS

College graduates with minimum 6 years' work experience in industrial engineering, cost analysis or related activities. To provide industrial engineering services ranging in scope from shop layout to organizational changes in major oil producing operations.

Write, giving full particulars regarding personal history and work experience. Please include your telephone number.

Recruiting Supervisor, Box 93

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, N. Y.

POSITIONS WANTED

Construction Supervisor — Civil Engineer, BSCE, age 29, 5½ years of supervisory experience in heavy construction including planning, supervision of structural work, and equipment installation. Must locate permanently within approximately 100 miles radius of Baltimore, Md. Resume on request. PW-8676, Engineering News-Record.

Sewer and Water Pipe Foreman—Supt. or labor supt.—20 yrs. Constg. experience—Available immediately. PW-8715, Engineering News-Record.

Construction Manager. Interested in association with reputable building contractor to direct entire field construction operation. Considerable multi-million dollar experience in both managerial administration and field construction superintendency. Registered Civil Engineer; graduate. Age 38. Available after January 10. PW-8747, Engineering News-Record.

Civil Engineer, BS, MS. in CE., age 32, 6 yrs. design experience in heavy foundations, bridges and miscellaneous hydraulic structures with internationally known U.S. consulting firm, desires responsible overseas position preferably in Near East or Europe. PW-8736, Engineering News-Record.

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

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DISPLAYED

The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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Subject to Agency Commission.

UNDISPLAYED

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Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for January 19th issue closing January 9th

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OPPORTUNITIES
in
SOUTHERN
CALIFORNIA
for

STRUCTURAL DESIGN ENGINEERS

With experience in

- **Structural Steel**
- **Reinforced Concrete**
- **Material Handling Systems**

Well established non-defense engineering & construction firm.
Excellent employee benefits, including a
PROFIT SHARING PROGRAM

Send resumes to

THE FLUOR CORP.
2500 S. Atlantic Blvd.
Los Angeles, Calif.

ENGINEERS

Designers Detailers Draftsmen
for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
1805 GRAND AVE. KANSAS CITY 8, MO.

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PERMANENT OPPORTUNITIES
with McKEE
IN OUR REFINERY, METALS OR INDUSTRIAL DIVISIONS AT OUR CLEVELAND, OHIO OFFICES

McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

PIPING
STRUCTURAL STEEL
CONCRETE
PROCESS HEATERS
EQUIPMENT SPECS.
ALSO
ELECTRICAL DRAFTS.
LAYOUT ENGINEERS
PROCESS ENGINEERS

Applicants should have at least five years' of experience.

Here is a rare opportunity for you to utilize your engineering abilities and talents.

McKee offers top compensation commensurate with experience and ability. No age limitations.

Transportation & Moving Allowances

Please Send Resume to:

Edward A. Kolner
ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

ENGINEERS

Architects

A leading engineering and construction company has immediate openings in its Cleveland and New York offices for engineers, group leaders and designers in one or more of the following categories.

ARCHITECTURE

Jr. Designers and designers with industrial design and checking experience

ELECTRICAL

Lighting layouts, controls and power layouts.

STRUCTURAL

Experience in industrial buildings, capable designing structural steel and reinforced concrete with equal facilities.

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Experience in Process piping, layout and design, heating, ventilating and air conditioning and underground plumbing.

We have openings in all the above classifications in our Cleveland office. Our New York office is also accepting applications from persons qualifying for the Architectural, structural and mechanical positions.

These positions offer long term employment with unlimited opportunities for advancement for individuals who wish to use their engineering training and education as a stepping stone to greater earnings and security; no age limitations.

Top salaries paid for qualified personnel

In addition we offer paid vacation and holidays, sick leave allowance, a group life insurance and hospitalization program and a liberal moving allowance.

Please submit complete resume stating education, experience, salary requirements and date available to:

The H. K. FERGUSON CO.
Engineers and Builders
1783 E. 11th St., Cleveland 14, Ohio
or
19 Rector St., New York 6, N. Y.

Unusual Opportunity for EXPERIENCED CONSTRUCTION MACHINERY SALES MANAGER

If you are looking for the opportunity to grow with a nationally known manufacturer of construction machinery, this is your chance. We are seeking an experienced man, 30-45 years old, as District Sales Manager with headquarters in Midwest metropolitan area. Technical education or background desirable but most important qualification is experience and ability to supervise selling of concrete construction machinery through distributors. Salary and bonus with all traveling expenses paid. Give personal statistics and experience history in reply. Replies confidential. CHAIN Belt Company, CONSTRUCTION MACHINERY DIVISION, Milwaukee 1, Wisconsin

P8675 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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OVERSEAS AND DOMESTIC

Applications now being accepted for a limited number of additional openings.

Foreign project located near Bangkok, Thailand requires qualified field engineers and location surveyors with extensive highway experience as construction inspectors, party chiefs or instrumentmen; ages 28 to 45, degree or college background. Bachelor status only; excellent salaries and allowances; free food and lodging.

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Field men with highway location experience are invited to inquire regarding openings on survey parties for midwest projects.

Top salaries commensurate with education and experience, plus employee benefit and retirement plan, paid vacations; sick leave and paid holidays. Write for application form.

SVERDRUP & PARCEL ENGINEERING COMPANY
1134 Locust Street **St. Louis 1, Mo.**

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EMPLOYMENT IN LOS ANGELES

Here's your opportunity to join an expanding progressive engineering company engaged in the design of commercial, industrial and government facilities.

Holmes & Narver, recognized for its outstanding performance with a world-wide reputation for successful operation, has been in business over twenty years.

Immediate openings exist in the following fields:

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TAKE-OFF MATERIAL & EQUIPMENT FROM DESIGN DRAWINGS INCLUDING BILL OF MATERIAL WRITING. PRICING & GENERAL ELECTRICAL ESTIMATING IS ALSO REQUIRED.

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TAKE-OFF MATERIAL & EQUIPMENT FROM DESIGN DRAWINGS WHICH INCLUDES AIR CONDITIONING SYSTEM, HEATING & VENTILATING, PLUMBING, & PROCESS PIPING. PRICING & GENERAL ESTIMATING IS ALSO REQUIRED.

Structural

TAKE-OFF MATERIAL (ARCHITECTURAL, STRUCTURAL, & CIVIL) & EQUIPMENT FROM DESIGN DRAWINGS INCLUDING BILL OF MATERIAL WRITING. PRICING & GENERAL ESTIMATING OF THESE CATEGORIES IS ALSO REQUIRED.

Please mail brief resume indicating education, experience, salaries, & earliest date available to Attn: A. W. Jamieson, Jr., 828 S. Figueroa St., Los Angeles, Calif.

HOLMES & NARVER, INC.
828 S. Figueroa
Los Angeles, Calif.

CITIZENSHIP REQUIRED

WANTED:

YOUNG ENGINEER

Preferably civil engineering graduate—by large northern Ohio building supply company. Experience not necessary. Send full information as to experience, education, etc.

P8632 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STRUCTURAL and MECHANICAL DESIGNERS

Having experience with heavy material handling equipment

Permanent Position For Qualified Men

HOSPITALIZATION
INSURANCE
VACATION

Phone or Write Chief Engineer for interview

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7000 CENTRAL AVE.
Cleveland 4, Ohio
Telephone EN 1-0842

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Graduate engineers with minimum 5 years' experience designing, selecting, specifying and/or supervising operations of construction equipment, such as crawlers, rubber-tired tractors, shovels, cranes, air compressors, welding machines, pumps, mixers, spreaders, fork lifts, etc.

To consult with manufacturers and suppliers on selection and modification of the above-mentioned equipment. For company's Equipment Engineering Division located in New York City. Salary good; liberal benefits.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 89

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

HEAVY CONSTRUCTION ESTIMATOR WANTED

Highest grade man wanted above 35 years; must be graduate C.E.; experienced in estimating projects such as large concrete structures, bridges, elevated highways, pumping stations and sewage plants, flood control projects, industrial construction etc.; capable to supervise or make complete estimates from quantity survey to final pricing. Location Chicago office of large engineering contractor. Permanent position, commensurate salary. Please state age, education, short experience outline, present salary, references who will not be contacted without your consent and when available.

P-8701, Engineering News Record
520 N. Michigan Ave., Chicago 11, Illinois.

SALES EXECUTIVE

Construction Equipment Manufacturer will pay well to fill this key position. Requirements—mature disposition, harmonious personal qualities, ability to get along well with others. Civil Engineering background and record in selling to builders, contractors and engineers. Ample experience in selecting, organizing, leading and training men. Company is one of leaders in field. Headquarters N. Y., but some travel will be necessary. Basic salary and expenses, plus very substantial bonus. For prompt appointment, please outline full qualifications and write in complete confidence.

P-8672, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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HIGHWAYS
HIGHWAY STRUCTURES
STEEL MILLS
CERAMIC PLANTS

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SWINDELL-DRESSLER CORPORATION
P. O. BOX 1888
Pittsburgh 30, Pa. *Phone Sterling 2-1000*

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An expanding field with a top-flight organization.

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Wanted to train as fieldmen. Send personal resume to:

P-8418, Engineering News-Record
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For General Municipal Work in Wisconsin City of 30,000 population. Wisconsin Registration as Professional Engineer Required. In first letter, state age, qualifications and salary expected.

P-8711, Engineering News-Record
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Sterling Model "A" for heavy duty work
Sterling Enterpriser, 6 cylinder model
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Sterling Prospector, built for REA and telephone work

Complete parts are available for Sterling, Jaques and other make earth boring machines. We completely rebuild and repair all makes diggers in our well equipped shops.

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WYOMING VALLEY EQUIPMENT DIV.
714 WYOMING AVE. KINGSTON, PA.

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LICENSES TO MANUFACTURE PATENTED HIGHWAY GUARD RAIL
In States of California, Texas, Virginia and District of Columbia. For information write to:
GUARANTY TRUST COMPANY OF NEW YORK, *Executor*
524 Fifth Avenue, New York 36, N. Y.
Attention: Personal Trust Department

DECKSTOW
FOR IMMEDIATE DELIVERY
Wooden deckstow 30 feet by 90 feet. Watertight, good condition. Call:
HORN CONSTRUCTION CO.,
at New York
FReeport 8-6985.

FASTER & CHEAPER
COMPACTION IN ALL SOILS
BY ADMIXTURE
BACKFILL TRENCHES, STRUCTURE-BACKFILL BRIDGES, FREEWAYS, AIRSTRIPS
For Information Call: WHitecliff 8-5900
COMPACTION ENGINEERING CO.
One First St. Los Altos, Calif.

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

—MAKE AN OFFER—
Two (2) used LaPlant Choate Model C-104 "Carrimor" Scrapers—25 cu. yds. struck—33 cu. yds. heaped. Also one spare tire and extra parts for each scraper.
PEORIA TRACTOR & EQUIPMENT CO.
2319 E. War Memorial Drive
Peoria, Ill. — Phone 2-5485

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These Classified Sections are at your service to bring business needs or "opportunities" to the attention of men in executive, management, sales and responsible technical, engineering and operating capacities with the industry served by this publication.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year.
WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

WANTED

SEARCHLIGHT SECTION

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WANTED

BINS, 100-400 Ton Capacity

3 or 4 Compartment, preferably with Truck Mixer Batcher.

Can use 3 immediately.

ANDERSON EQUIPMENT CO.
Box 1737, Pittsburgh 30, Pa.
Phone: LEhigh 1-6020

WANTED TO BUY
for immediate export

One Over-head Crane 50' to 70' span, app. 10 ton equipped with 2 hoist drums for clam shell operation.

Two Portable Rock Crushers 40 to 60 cu. yds. per hr.

One Steam Engine for power drive, 100 to 150 HP.

Wire, write or phone, attn. Mr. Earl A. Carpenter
INTER-AMERICAN MACHINERY Co.
100 Broadway, Houston, 12, Texas
Phone WA 6-1787

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New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS

20 pcs	8" B P	36#	60/65'
55 "	10" B P	57#	61' 0"
70 "	12" B P	53#	60/65'
14 "	12" B P	74#	60/63'
20 "	36" W F	230#	44/54'

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Phone or Wire your steel requirements

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We assure you our prices will be the best obtainable.

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The Grand Plan Demands a Great Decision

Congress ducked a decision in 1955 on the President's "grand plan" for an adequate highway program. That it will want to dally further in 1956 on this most pressing of economic and social problems is hardly likely. Moreover, during the past 6 months, thinking has crystallized, favorable public sentiment has increased and factual knowledge on needs and financing have expanded to such a degree that no excuse for further delay remains. In addition, next session is authorization time for the fiscal years 1958 and 1959, regardless of any new program. So coming up is a decision that can't be ducked unless we are going to abandon highway development entirely.

Just to continue federal aid at present levels, however, is no answer at all to the challenge of the highway problem. It might keep the nation alive, but it wouldn't allow it to grow. Congress is well aware of this economic truism, and it is also aware that a preponderant proportion of the population has conceded it, and is willing to pay the price to assure our continued national growth. No greater opportunity to lay aside partisanship and to shun procrastination in the nation's interest is apt to arise for many years to come.

It is because of this opportunity and against this background that a major part of this issue is devoted to presenting the views of a number of recognized experts in the field of highway development and finance. Emphasis is placed on finance because it was on this thorny question that all of the Congressional bills of the last session foundered. These experts show that financing is far from insurmountable if the physical part of the program is wisely laid out and scheduled.

Fortunately, the President's "grand plan" charted the necessary program so clearly and logically that this aspect of the problem is pretty well nailed down. For example, it is now widely accepted that our investment in roads over the next ten or a dozen years must be doubled. It is also agreed that major emphasis during this period should be applied to the 40,000 mile interstate system. And there is general assent to the proposition that most of the $27 million required for these interstate routes should be a federal responsibility.

Agreement on these fundamentals makes them the benchmark from which the next legislative effort to write a new highway bill can take off. Actually there should be two bills, or at least two aspects of the problem that should get separate consideration—the program itself and the means for financing it. One aspect would find expression in an authorization bill, the other in a revenue bill. Failure to separate authorization and revenue considerations at the last session caused details of the highway program itself to be glossed over; it also was contrary to normal Congressional procedure.

An authorization bill, to be satisfactory, should reflect answers to such questions as these: If the federal government is to assume financing responsibility for 75 to 90% of the cost of the interstate system, should this be accomplished by a separate national setup or merely by extending present federal-state relationships? On what basis should interstate system money be allocated to the states? Should some special requirements as to planning, cost and type of urban sections be met as a prelude to a state's qualifying for federal aid on them? What level of federal aid can the states count on for roads not in the interstate system? How far in advance are authorizations to be made, and for how long a period? Will states be allowed a credit for interstate sections they finance themselves? Can tolls be charged on federal-aid roads?

Such a highway bill would define both the principles and the scope of an adequate highway program. It would also give accurate dimension to the funds required, without stating how these funds are to be raised.

How the federal government is to raise its share may, of course, again be the most difficult question to resolve, but only if the will to compromise is lacking. For example, it seems clear that if the federal government would devote as much to roads as it collects in road user taxes, it could finance the interstate system over a period of about 12 years and keep other federal aid at present levels. It seems almost as certain, if a faster construction pace is required, that either credit financing or equitable increases in user taxes would not encounter serious opposition. Or were some encouragement to be given to the states to utilize toll revenue bonds, federal expenditures might be reduced or spread over a longer period.

There is a variety of sound ways available to finance an adequate road program, as the experts writing in this issue show. What is needed first is a highway program with objectives worthy of the nation's needs spelled out in a Congressional act which defines the principles to be followed and containing a long-term commitment that the states and the construction industry can count on. After that, raising the money, in what should be modest annual increments for a nation as wealthy as ours, would follow as a mater of course.

Actually the financing roadblock is more psychological than real. Once Congress admits this fact, its troubles will be over. The time for decision is at hand.

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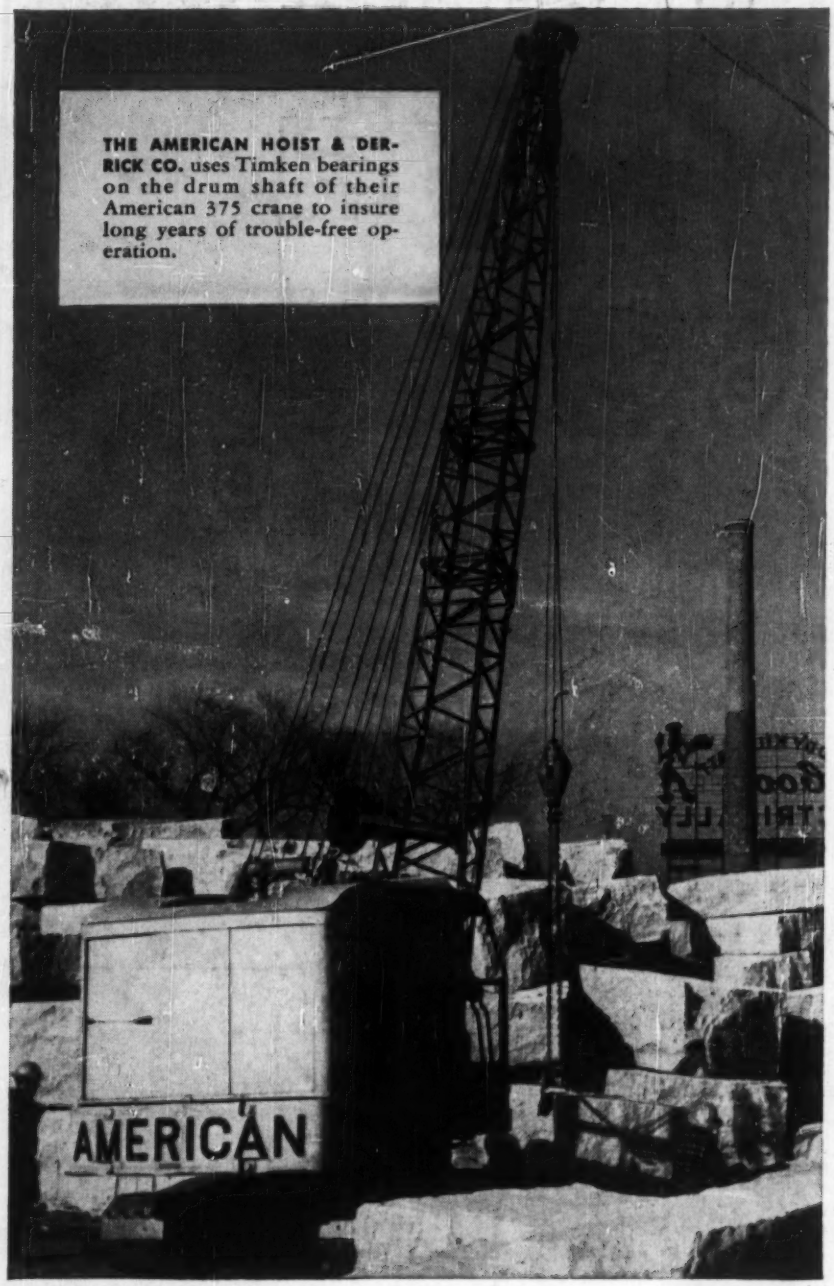

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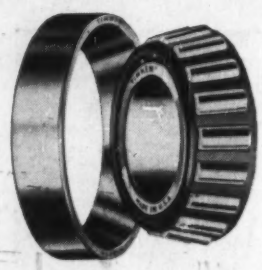

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